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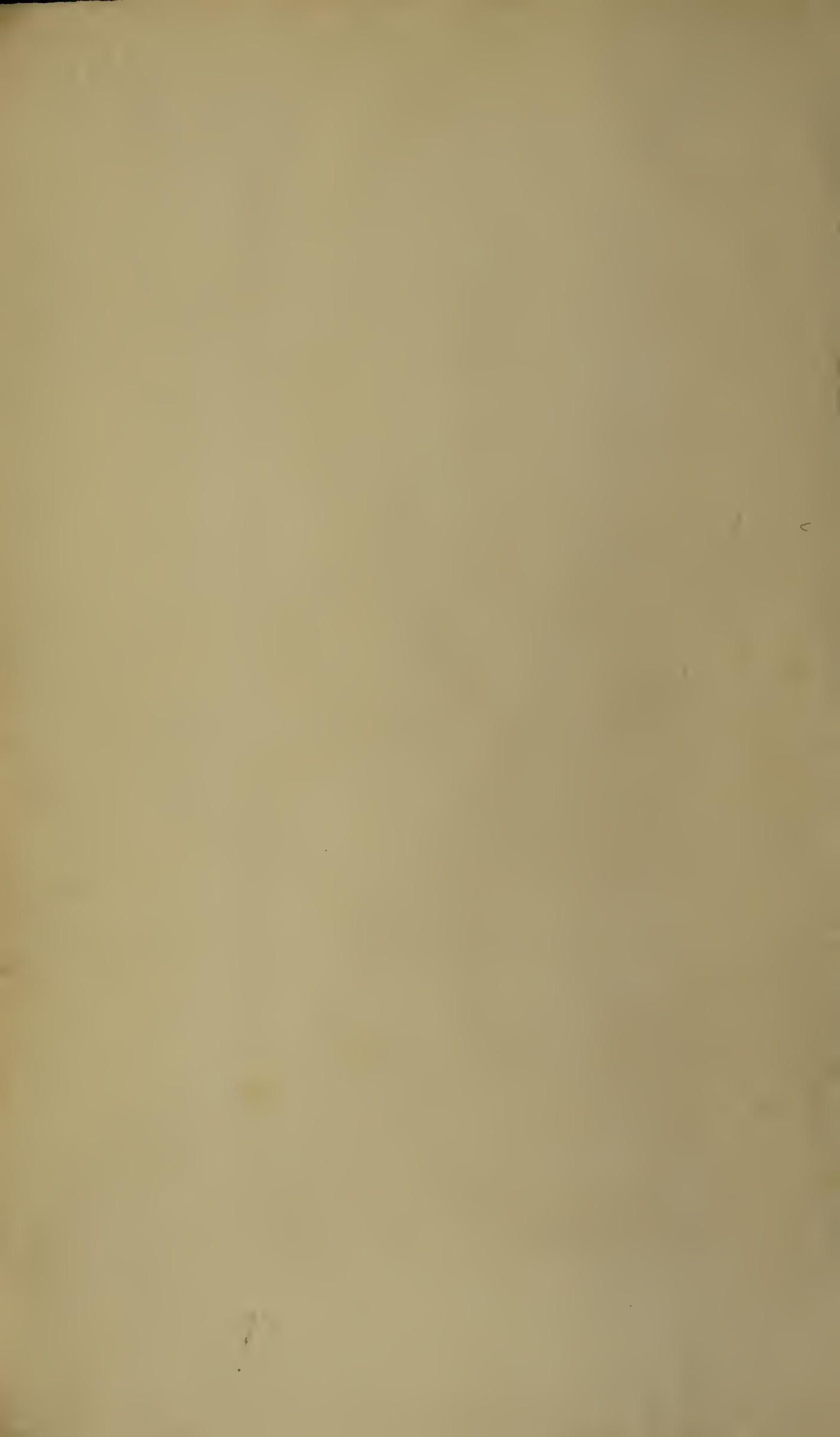
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# MEDICAL ESSAYS



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# M E D I C A L   E S S A Y S

## A N D

# O B S E R V A T I O N S.

## A N A T O M Y   a n d   C H I R U R G E R Y.

*An essay on the method of preparing and preserving the parts of animal bodies for anatomical uses ; by ALEXANDER MONRO, professor of anatomy in the university of Edinburgh, and F. R. S. Vol. III. art. 10.*

**T**HE difficulties of preparing and preserving the parts of animal bodies for anatomical uses, are apt to discourage young beginners from prosecuting this useful art with due application. To facilitate their labours, which may possibly contribute to the improvement of anatomy, I shall lay down the methods which I have found the most successful.

The chief preparation of the bones is to make them white, and this may be done by macerating them in cold water, (which should be often changed) and then putting them to dry in the sun ; you must be careful not to let them lie too long in the water, lest the most spongy parts be destroyed or the epiphyses separated ; if the bones are of a young subject, and if they are suffered to dry before the blood is entirely taken away, they will never be white.

The bones of young animals, as they have less oil, will be whiter than those of old ones, and will not soon turn yellow.

The bones of foetuses should be frequently taken out of the water ; and the periosteum suffered to remain on at the epiphyses.

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Cartilages are prepared as the bones are, but must be brought to, and kept in their proper shape, by strings, weights, and the like, whilst they are drying.

The muscles are to be laid in the posture which they are intended to be preserved in, and as they are drying pressed into their natural shape.

When you have injected the blood-vessels, as laid down in the following article, macerate the part in cold water till the blood is all extracted, then squeeze all the water out of it, and hang it up to dry a little in the air before you put it into the spirit in which it is to be preserved.

But there is still farther art requisite to shew very minute vessels, which is as follows ; put the part into water, and there let it remain till the involving membrane is raised from it, which you must separate and remove quite away, suffering the other part to lie in the water till the fibres are dissolved ; which may be known by shaking the part in the water which washes the corrupted particles off by degrees ; and at last the small vessels will appear distinct, floating in the water ; then take the preparation out, drain all the water from it, and suspend it in the middle of a glass, which is to be filled with the preserving liquor, by a thread or hair. I could never divide nerves into their very small filaments after they were involved in the dura-mater, but before it is easily done. Those which make up the cauda equina are best for this purpose ; cut one of these cords through, where it comes from the medulla spinalis, and is about to enter the dura mater, pass a horse-hair through one end of it, and suspend it in water for some time ; when it is well macerated raise it to the side of the basin, and draw a small needle lightly along it. Continue this operation, till upon twirling the nerve in the water you see it expanded into a fine web of fibres ; it is then fit to be put into the spirit. If the blood-vessels are first injected, tie the hair to the end nearest the dura mater, that the trunk of the nerve and artery may be seen together. The cauda equina thus prepared appears very beautiful, the injected

injected vessels running almost upon each filament of the nerve. When a fine membrane, such as the pleura, is to be preserved, in order to shew the arteries after injection, as much of the cellular membrane should be saved as can be, without spoiling the transparency; for when it is wholly removed, few continued ramifications are to be seen. When there is but little fat in the cells, the membranes, if left, can't be easily discerned: and if there is much fat it must be pressed out as clean as possible, and the part well macerated. In membranes which are to be preserved wet, the vessels will appear much plainer if they are first dried, and afterwards put into the liquor. To do this extend them with pins on a smooth board: and when they are dry cut off the doubled edges and other inequalities with a scissars. Ruysch separated the cuticula and corpus reticulare from the skin by stretching the integuments on a board, and then dipping them into scalding water, by which the cuticula and corpus reticulare were loosened, and then easily separated from the skin by the handle of a dissecting knife: as may be also the corpus reticulare from the cuticula: afterwards they may be either kept dry or in spirit of wine.

The cuticula of the hand or foot may be taken off entire, after it is loosened by putrefaction; and this method I prefer to the former.

The membrana cellularis cannot be kept inflated, unless it has little or no fat. The best part for a preparation of this kind is the scrotum, which by inflation may be changed into fine membranous cells; Car. Stephanus says, that the cellular membrane in any other part appears muscular when the fat is gone: these observations will serve as an apology for some anatomists, who reckon a tunica carnosa among the common integuments of the body.

To preserve the dura mater in its natural situation, you must first saw the cranium from the nose to the occiput perpendicularly, and afterwards by an horizontal section, terminating at the extremities of the former, remove a great share of one side of the cranium; then

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open the dura mater by an incision in the form of a T, clear the head of all the contents, and preserve it in spirit of wine, or dry it in the air, taking care to keep the dura mater from shriveling.

If the head of a foetus is to be thus dried, the membranes between the bones must be kept from contracting by putting little sticks of a proper length into the cranium, so as to prevent the bones from approaching each other. The processes of the pia mater are easily separated entire with it, when this membrane (which frequently happens) is much thickened, and even in a natural state, large pieces of it, with its processes, may be separated after proper maceration. When it is quite freed from water, put it into the spirit of wine, taking care to keep it properly extended.

Before you can prepare the eye, so as to demonstrate all its parts, you must coagulate the crystalline and vitreous humours by putting it into a proper liquor; after this macerate it some time in water, and then you will easily separate the choroid coat and also Ruyfch's. The glands and ducts of the palpebrae are better seen, after the arteries are injected, and the liquors coagulated, than in a fresh subject.

By macerating the ear in water, the membrane which lines the meatus auditorius externus, and forms the outer lamella of the membrana tympani (and which is only a continuation of the epidermis of the ear) may be easily separated in adults or foetuses; and indeed the membrana tympani seems to be made up of this cuticula and the membrane which lines the tympanum, joined by a cellular substance in which the larger branches of the vessels are distributed.

The cuticula of the lips is easily taken off after maceration, which much improves the villous appearance when the lips are afterwards put into spirit of wine.

The villous substance of the tongue is made quite red by a proper injection, and a membrane analogous to the cuticula separates from it by maceration; and indeed the lips, tongue, oesophagus, stomach and intestines seem to be covered with this sort of cuticula which

which is fastned to the muscular part by a cellular substance that contains the nerves, blood-vessels, glands, &c. this forms valves or rugæ where it is thick and loose, but looks like a fine membrane where it is thin and stretched.

There are no parts of the body so difficult to have a good idea of, as those subservient to deglutition, as neither a recent body nor a wet preparation can shew them tolerably exact; the best way is to shew the larger parts in a dry preparation, which requires great patience to execute well. For after all the muscles are neatly dissected, they must be cut off from the surrounding parts, and removed together with the tongue, os hyoides, fauces, velum palati, uvula, larynx, &c. and then placed and kept in their natural situation, with pins or threads, properly fastned to a board. Then put a cork into the lower part of the trachea, and tie that and the œsophagus firmly together, and fill, with quicksilver, the œsophagus, trachea, &c. in which condition hang the whole up, till the parts are pretty firm, but not quite dry; when the quicksilver should be poured out, and the parts which are over-stretched should by squeezing and pressing be brought to their natural situation; and such as are too much shriveled, pulled out from time to time to their proper shape, till they are quite dry.

The hollow viscera of the thorax and abdomen ought to have their vessels first injected, and when they are to be preserved dry, filled with a proper matter to prevent their shriveling as they dry, and which afterwards may be easily removed. The best methods are either blowing them up, or filling them with quicksilver, or melted wax; the last is only proper to shew the exterior surface; in all other cases, use either air, or quicksilver: I prefer the first, for it stretches all parts equally, but mercury presses most on the depending parts; besides, the bowels which are inflated dry in much less time than those which are filled with quicksilver; but if the parts are such as will not retain the first, they must be prepared by the

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latter. In preparing the œsophagus, stomach, intestines, &c. you must make use of air, but in preparing the pericardium, uterus, &c. mercury is necessary, as also in preparing the heart with its blood-vessels, and the pelvis of the kidney with the ureter. The corpora cavernosa and the vesiculæ semifinales retain both, but mercury leaves a tinge, which hinders a clear view of the structure of the parts ; and it is also difficult to fill the vesiculæ semifinales with it, for when it is poured into the vas deferens it is liable to be stopped by the moisture of this tube, and when it is not, it often forces its way into the urethra, and never mounts into the vesicula till the urethra is quite filled ; whereas the air, when gently blowed in, easily rises into the vesicula, as it has not force enough to open the orifice in the urethra.

The lungs or spleen will seldom retain air, nor will the glans of the penis always do it ; therefore for these parts we generally make use of quicksilver, but this does considerable damage to the lungs and glans, as the cells are smaller than those of the spleen.

When we have once fixed upon our liquors, care should be taken to clear the parts, intended to be filled, of their contents, and to secure all the openings except that through which we intend to pour the liquors. This passage should be such as will best and soonest admit the fluid into every part of the cavity you intend to fill, and which is easiest to be secured afterwards.

The place proper for inflating the intestines, vesica fellea, and urinaria, every body knows. The heart and large arteries are easily filled through the vena cava, or the pulmonary veins ; the lungs by the trachea arteria ; the kidney by the ureter ; the spleen by the capsula atrabiliaris, and the corpora cavernosa penis, by their proper veins.

For inflating any of the vessels, a pipe with a notch at the end with a stop-cock above it, is most convenient : introduce the small end into the opening, and with a waxed thread tie the vessel to the pipe exactly.

exactly over the notch, which will prevent its slipping ; when you have sufficiently inflated the part, turn the cock and leave it to dry : if you make use of a common blow-pipe, you must get an assistant to make a ligature on the vessel below the pipe when the part is sufficiently distended. If quicksilver is used, the passage thro' which it is poured must be higher than the rest of the preparation ; and when the passage is narrow, a small glass-funnel or pipe is convenient, which must be long where the weight of a column of mercury is necessary to fill the minute vessels. If the part will allow it, this passage should be tied firmly, or else be kept always uppermost till the preparation be quite dried. When a large quantity of mercury is poured into a part of a tender texture, the upper part of it should be suspended by threads, and hooks, and the inferior part supported by a small net spread under it.

The directions before given are sufficient for preserving the greatest part of the viscera ; but the lungs and spleen require more care, as quicksilver or air will easily escape through their membranes. These parts should be taken from such animals as have the exterior membrane of these viscera thick and strong ; after they are distended dry them in the sun, or before a moderate fire, taking care if they subside to inflate them anew. As soon as the surface is dry cover them over with turpentine varnish, which will prevent the air from escaping, and dry them thoroughly with all possible expedition. When the human spleen has been thus distended and dried, you will find it composed of cells communicating with each other, with several branches of an artery spread upon the sides of them, if the arteries be first injected. If the lungs thus prepared are cut, the vesicles appear to be polygons, for the most part irregular squares and pentagons, and one might conclude they are more so in a living animal, for the exterior membrane is of a texture stronger than the vesicles, and will keep them from being extended so much as they are capable, and therefore they must press against each other and form a figure of as many

angles, and sides, as there are contiguous vesicles, and then the thorax does not admit the lungs to be distended as far as the exterior membrane will allow; consequently the vesicles must be more compressed, and the sides straitned, in respiration, than when they are distended after they are taken out of the body; these considerations, and the plain polygon form of the cells in the lungs of serpents, frogs, &c. make me surprized that the vesicles of more complicated lungs should be taken to be spherical, or any figure whose transverse section is circular.

The manner of preserving preparations is either by drying them thoroughly in the air, or putting them into proper liquor: in drying parts which are very thick when the weather is warm, you must take care to prevent putrefaction, fly-blows, insects, &c. from destroying them, which is easily done by soaking the part in a solution of corrosive sublimate in spirit of wine, made in the following proportion, viz. S. V. Ibj. Merc. sublim. 3ij. the part should be moistened with this liquor, as it dries. By this method the body of a child may be safe kept even in summer. As dried preparations are apt to crack and moulder away in keeping, you should cover the surface with a thick vanish, and repeat this as often as there is occasion; though several parts prepared dry are useful, yet several others must be so managed as to be always flexible, and nearer a natural state; the difficulty has been to find a proper liquor for this purpose; the best which I know is a well rectified colourless spirit of wine, to which I add a small quantity of spirit of vitriol or nitre. When these are properly mixed they neither change their colour, nor the consistence of the parts, except where there are serous or mucous liquors contained in them. The brain, even of a young child, in this mixture grows so firm as to admit of gentle handling, as do also the vitreous and crystalline humours, &c. of the eye; the liquor of the sebaceous glands, the semen are coagulated by this spirituous mixture; and it heightens the red colour of the injection of the blood-vessels, so that after the part has

been

been in it a little time, several vessels appear which were before invisible. If you compare these effects with what Ruysch has said of his balsam, you will find that the liquor above-mentioned comes very near to it.

The proportion of the two spirits must be changed according to the part prepared : for the brain, and humours of the eye, you must put spirit of nitre 5ij. to spirit of wine 1bj. in preserving other parts which are harder, thirty or forty drops of the acid will be sufficient : a larger quantity will make bones flexible, and even dissolve them ; the part thus preserved should be always kept covered with the liquor, therefore be very careful to stop the mouth of the glafs with a waxed cork and a bladder tied over it, to prevent the evaporation of the spirit ; some of which notwithstanding all this care will fly off, therefore you must add fresh as you see occasion. When the spirits change to a dark tincture, which will sometimes happen, pour them off, and put fresh in their room, but with somewhat less acid than at first. As for the glasses which contain your preparations they should be of the finest sort and pretty thick, for through such you will see the parts very distinct and of a true colour, and the object will be so magnified as to shew vessels in the glass which out of it were not to be seen.

As the glafs when filled with the liquor has a certain focus, it is necessary to keep the preparation at a proper distance from the sides of it, which is easily done by little sticks suitably placed, or by suspending it with a thread in a proper situation. I shall finish these directions with cautioning the operator from putting his fingers in this liquor oftner than is absolutely necessary, because it brings on a numbness on the skin, which makes the fingers unfit for any nice operation. The best remedy for this which I know of, is to wash them in water mixed with a few drops of oil of tartar per de-liquum.

*An essay on the art of injecting the vessels of animals, by the same.* Vol. I. art. 9.

THE modern invention of filling the vessels of animals with a coloured fluid, which upon cooling grows hard, has contributed greatly to the improvement of anatomy, not only by giving us an opportunity to examine their distribution, situation, &c. but also by discovering a great number of vessels, which, without this art, we should never have been acquainted with. The manner of filling the larger trunks is known to most anatomists, but few are acquainted with the art of filling the capillary vessels; therefore I shall lay down that which I have found, after many trials, to be most successful, and communicate all I know of this affair, without reserve. The instrument used in injecting, is a well made brass syringe to which several pipes of various diameters are fitted and can be fixed by screwing them into the body of the syringe: the other end of these pipes is entirely smooth and exactly fitted to the pipe which is put into the blood-vessel, that when both are pressed together, nothing can pass between them: to prevent the latter from being forced off by the injection, a cross bar is fastned to it, which is to be held with the fingers, and pressed close to the pipe which is screwed into the syringe; the ends of this second sort of pipes are of different diameters, and round each a notch or groove is made for admitting the thread which ties it to the blood-vessel, so that it may not slip out. Besides these pipes one with a valve or stop cock is necessary in filling the larger vessels to hinder the injected liquor from running back, but it is still more useful when the vessels to be injected require more liquor than the syringe will contain at once; for by turning the cock you may keep in the injection while the syringe is filled a second time. As to the fluid to be injected, it is variously composed: the different kinds of  
glew

glew as ichthycolla size, &c. dissolved mix easy, and pass into very small vessels, and will do very well in preparing a fine membrane where the vessels are so small that the eye can't discover whether the transverse sections are circular or their sides collapsed; but this injection will not answer your purpose when the larger vessels are to be prepared, for before the glew will dry the subject will be spoiled; to prevent this you may soak the part in spirit of wine, but then the injection becomes so brittle that it will crack with the least handling, and if the preparation is to be kept, the larger vessels appear shriveled when the watery part is evaporated. The method which I have found to succeed best, is first to inject so much coloured oil of turpentine as will fill the small vessels, and afterwards to force the common injection into the larger ones, the oil will pass into smaller tubes than the colour in it can, and its resinous parts will give a sufficient adhesion to the particles of the colour and prevent their separating, and this fine injection mixes with the coarser so intimately, that you can't discover that two sorts were used.

The colours used by anatomists are various; what I use are red, green, and sometimes blue: in the red injection I use vermillion, which gives a beautiful, bright colour, and is to be bought finely levigated; in the green I use distilled verdigrease because the colour is brighter than the common sort, and never runs into knots, and dissolves in oily liquors. To make the fine injection, pour a pint of oil of turpentine on three ounces of vermillion, or verdigrease, according to the colour you want, stir them well with a wooden spatula till they are thoroughly mixed, and then strain all through a fine linnen rag. The coarser injection is made thus; take tallow 1lb. white wax 3v. oil of olives 3ij. melt them over a gentle fire, then add of venice turpentine 3ij. when this is dissolved, sprinkle in of vermillion or verdigrease 3ij. then pass all through a warm linnen cloth: when you design to make it run far in the vessels,

add

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add some oil of turpentine immediately before you use it.

The next thing to be considered is the choice and preparation of the subject, for which observe the following rules. 1. The younger the creature is, the further the injection will go. 2. The more the fluids have been exhausted in life, the greater will be the success of the operation. 3. The less solid the part, the more vessels will be filled. 4. The more membranous and transparent the parts are, the better the injection will appear.

In preparing a subject, the principal things are to dissolve the fluids, empty the vessels, relax the solids, and prevent the injection's cooling too soon. First macerate the body, or part to be injected, a considerable time in water so warm that you can hold your hand in it, which will relax the vessels, melt down the blood, and keep the injection from hardening too soon: whereas if the water is too hot, the vessels shrivel and the blood coagulates. From time to time squeeze out the fluids at the opening, by which the injection is to be made. The maceration should always be in proportion to the age and bulk of the subject, and the quantity of blood we observe in the vessels: we ought also to be particularly careful to make the subject or part perfectly warm throughout, and to press it with our hands till no more blood can be forced away.

All things being thus in readiness, choose a pipe a little smaller than the diameter of the vessel, and introduce it at an incision made in its side, and then with a waxed thread secure it from slipping out. If there have been any large vessels cut which communicated with those you intend to inject, or if there are any others from the same trunk which you don't choose to fill, let them be carefully tied, which will save the injection, and make the operation succeed the better; when this is done, warm both the injections, stirring them all the while. The oil of turpentine should be no warmer than what you can bear your finger in, the other injection should be near boiling: the syringe should be made

made very hot by drawing boiling water into it, and the pipe within the vessel may be heated with a sponge dipped in boiling water. Remember to wrap a coarse cloth round the syringe, for otherwise you won't be able to hold it. After all is ready, fill the syringe with the finer injection, and then introduce the pipe of the syringe into that of the vessel and press them together; with the left hand holding this last pipe firm, and gripping the syringe with the other, then pressing your breast against the sucker gently force it down. The injection should be thrown in slowly, and with no great force, and proportioned to the length and bulk of the part and the strength of the vessels.

When you have pushed the sucker so far that you are sensible of a stop, which would require a considerable force to overcome, draw it a little back, in order to empty the nearest large vessels; then take the syringe away and force out the fine injection, and immediately fill it with the coarser, which must be thrown into the vessels quickly and forcibly, having always regard to the strength of the vessels, &c. continue to force in the injection till you feel a full stop, when you must desist, otherwise the vessels will burst and the whole, or part of the preparation, be spoiled. You must always remember to keep the syringe in the pipe which is fastned to the vessel, till the injection is grown cold, when there is no danger of its running out.

In this way I have injected the cortical part of the brain, tunica choroides, and vasculosa of the eye, periosteum of the bones of the ear, vessels of the teeth, tunica villosa of the intestines. As a specimen of my success, I have sent you the figure of a little piece of the tunica villosa of the intestines. In plate 1. fig. 6. you see this as it appears to the naked eye, only all the vessels filled with the red colour in the original cannot be seen here. Fig. 7. represents it as it appears viewed with a microscope; what looks like moss-work shews itself vascular when magnified more than it was when the painter drew this figure.

*Remarks on the articulation, muscles and luxation  
of the lower jaw, by the same. Vol. I. art.  
II.*

EACH condyle of the lower jaw is articulated with the cavity behind the zygoma, and with the root of that process: both the anterior part of the cavity, and the posterior part of the tubercle at the root of the zygoma, are covered with a smooth cartilage for the jaw to move on, and the ligament of this joint is fixed into the circumference of these two surfaces. The share of the cavity covered with cartilage is small, but the ligament generally is spread over, and loosely connected by cellular membranes to a larger share of it backwards, and the large part which remains behind this is filled externally with the parotid gland, which frequently resembles the conglobate glands in firmness and smoothness, but I could never separate this part from the rest of the gland without violence. In the remaining share of the cavity immediately before the styloid process, a fat cellular substance is lodged.

The exterior extremity of this oblong posterior cavity, is made very narrow by the meatus auditorius externus being considerably advanced forwards here, which prevents the condyle from being pushed so far back as to injure the gland in the more internal part of the cavity.

The ligament which rises from the circumference of the smooth surface of the temporal bone is long and wide, and is inserted into the edge of the concave inmoveable cartilage; from which edge another ligament goes out to surround the condyle of the jaw, and to be inserted into the neck of that bone: this last ligament is more tightly connected to the cartilage and bone than the former.

Each condyle of the jaw-bone stands with its greatest length transversely, but with a small degree of obliquity,

ty, the external extremity being a little further advanced forward than the other. The convexity of this process is almost turned entirely forwards, where it is covered with cartilage for the articulation, while the neck and posterior surface of the condyle appear in one flat straight surface, with very little cartilage covering the upper part of it.

Into the anterior edge of the moveable cartilage interposed between each condyle and temporal bone, a considerable share of the external pterygoid muscle is strongly inserted, and some few fibres of the temporal and masseter muscles are also fixed to the external and superior part of this cartilage. Dr. Douglas (a) is the only author I know, who has so much as hinted this insertion of these muscles.

These descriptions will be better understood from plate VI. where the parts described are represented in their natural situation and magnitude.

When the teeth of both jaws are opposite, each to those of the same class, the condyles of the lower jaw are, in most men, placed in the cavity of each temporal bone; but as soon as the teeth of the lower jaw are advanced forward beyond the range of the superior, the condyles descend on the tubercles; this any one may perceive in himself, by laying his fingers on the angles of his own jaw, while he performs these motions; and it is obvious to the sight, when the articulation is laid bare by dissection, and the bone moved in the manner mentioned.

The condyles can be moved laterally when they are lodged in the cavities, or on the tubercles; but these lateral motions are much more confined in the cavities, because of the surrounding brims. These facts are to be examined in the same way as the former.

The lateral motions, and those backwards and forwards, of the lower jaw, being exceedingly necessary for us in chewing; this mechanism of a double sort of

(a) Myograph. chap. 20. & append. p. 8.

articulation in a cavity, and on a protuberance, answers the design much more effectually than any one uniform surface could have done. But without the interposition of a doubly concave cartilage, the motion of the condyle upon the tubercle would have been vacillating and often dangerous, seeing the two convexities could only touch each other in one straight line, and therefore the condyle would have slid off, either back to the cartilage again, or forward to occasion a luxation ; whereas the cartilage, when placed on the tubercle, renders the surface on which the condyle is to rest, really concave, and exactly fitted to the convexity of that process. If however this cartilage was to remain always in the same situation with respect to the condyle, it would be unnecessary when this process is lodged in the cavity ; therefore the cartilage is never pressed farther back than the posterior surface of the tubercle, and therefore it receives the anterior convex surface of the condyle ; but while the cartilage is on the lower part of the tubercle, only the superior straight part of the condyle is joined to it. This is evident on performing these motions after the joint is laid bare, and part of the ligament which goes between the condyle and the moveable cartilage is cut.

The surface of both condyle and cartilage is so slippery, the anterior edge of the cartilage so little prominent, and the anterior part of the ligament connecting the two so loose, that the pressure of the condyle on the cartilage would not be sufficient to bring the cartilage as quickly forward as the condyle, which however I have endeavoured to prove is necessary. To prevent therefore the inconveniences which might arise from the condyle's being immediately contiguous to the tubercle, some of the muscles which serve to move the condyle forwards, are also inserted into the cartilage, and will equally advance both ; and as the external pterygoid muscle has the most direct action this way, and indeed the largest share in performing this

this motion, it has the greatest number of fibres inserted into the edge of the cartilage.

If the mouth is opened while the condyle stands on the tubercle, the flat back-part of the condyle will be applied to the cartilage, the anterior prominence of which consequently has little effect in preventing the condyle from slipping forwards : so that if the least force is employed, at the same time, to pull or push the jaw forward, a dislocation must inevitably happen. To prevent which, the muscles which open the mouth are so situated, that when they act, they must also pull the jaw backward : hence, when one attempts to open his mouth, while the under teeth are advanced beyond the upper, he is immediately sensible of the jaw's sliding back ; and no dislocation happens without an external force applied, unless when the raisers of the jaw, by a convulsive contraction, as in yawning, or violent vomiting, forcibly keep the jaw forwards in the time that the depressors are acting.

The lower jaw is generally said to be brought down by the force of the digastric muscles solely, but possibly without sufficient grounds ; for these muscles appear incapable of opening the mouth so wide, and with such force as we see it is : for,

1. The bellies of these muscles appear too short for performing such a large contraction as is often required, if we allow each fibre to contract one third of its length ; but if Bernouilli's (a) computation of one fifth be admitted, they are evidently too short,

2. The proportional force of the digastrics to that of the levators of the jaw, is less than what is commonly observed in other parts, where antagonist muscles are ; which force is, on some occasions, greatly lessened by the angle of insertion of these digastric muscles into the jaw, decreasing as the mouth is opened.

These suspicions made me enquire more exactly into the structure of the parts, and try some experi-

(a) Act. Petropolit. tom. 5.

ments which seem all to contradict the common opinion : for,

3. There is no pulley the least akin to that of the larger oblique muscle of the eye, thro' which the tendon of each digastric passes ; what is called the ligament connecting the tendon of the digastrics to the os hyoides, is part of the proper tendinous fibres of the digastric muscle, sent off from the rest in form of an aponeurosis (a), which is fastened to the os hyoides, and is in part spread over the inferior extremity of the mylohyoideus muscle, to be united to such another aponeurosis of the other side ; and the connexion of this aponeurosis, as it comes off from the round tendon, is so firm, that the least motion of the tendon within the sheath is not allowed : but this aponeurosis being of some length, yields a little backward or forward when one or other of the fleshy bellies of the digastric is shortened. Since then there is no sheath in which the middle tendon can slide, but that on the contrary it is connected to the os hyoides, we see the unfitness of the posterior heads of the two digastrics for pulling the jaw down.

4. That we may have ocular conviction of the posterior belly of the digastric having no effect on the lower jaw, let it be laid bare in a dead body, whose head must be reclined back for this purpose, and then pull this muscle in the direction of its fibres, while the os hyoides is kept firm, or a little brought down (which this bone evidently is when the mouth is opened) and the jaw will not in the least be moved. If the os hyoides is left unfixed while the muscle is pulled, it is brought upwards till the two heads of the digastric form a strait line, after which indeed the force applied to the posterior belly of the muscle begins to depress the jaw. But as the first case of the os hyoides being kept firm, is the only supposition to be allowed in the present question, I presume this conclusion from the foregoing observations will scarce be refused, that the common account of the action of

(a) See Cowper's Myot. tab. XXIII.

the digastric muscles is not altogether so unexceptionable, as it has hitherto passed for.

Having set aside the mechanism of a pulley, thro' which the middle tendon of each digastric is said to pass, and having excluded the posterior head of that muscle from its office of pulling the jaw-bone down, I am almost induced to think, that in the ordinary depressions of the lower jaw, the anterior bellies of the digastric muscles are as little employed as the posterior: for,

5. When the two extremities of this anterior head are pulled towards the middle, by the help of a thread passed through the firm tendinous part near each extremity, the ends of which are crossed and equally drawn in the direction of the fibres; the tendinous aponeurosis yields near as much forwards as one would expect the natural contraction of this fleshy belly would require. When the aponeurosis is fully stretched, the os hyoides is brought upwards, and then the jaw-bone is pulled down. If the os hyoides is kept firm, while this muscle is thus drawn, its effects on the lower jaw will be greater. And if the posterior head is also pulled at the same time, the whole force where-with the anterior belly is drawn, is employed in opening the mouth. From which it appears, that in order to apply the power of this anterior muscular head to the jaw-bone, it is necessary to suppose the posterior belly to act at the same time with it, that the aponeurosis may be kept stretched, which is all the service this head is of; and in performing this they must exert a force equal to the contraction of the anterior belly; and that force must be employed in the direction of its muscular fibres on the os hyoides, and therefore must counteract the muscles which pull the os hyoides down: but I shall hereafter prove that the action of these last muscles is constant and necessary in opening the mouth, consequently the jaw gains nothing on this supposition of the anterior belly of the digastric assisting the depression of it, since an equal power is lost by the action of the posterior head.

From all which there is at least an improbability of any part of the digastric muscle acting in the depression of the jaw, since nothing is to be gained by it.

6. To confirm what has been argued for in the preceding paragraph, let any one, whose tunica cellulosa is not too well filled, apply his fingers to the teguments which cover the anterior heads of the digastric muscles, while the mouth is opened ever so wide, quickly, or strongly, he will indeed feel these muscles protruded a little outwards, by the swelling of those above them, but will not be sensible of their becoming either harder or shorter, which however is plainly to be felt at this same time in much thinner muscles, the sternohyoidei and sternothyroidei, by placing another finger on the forepart of the trachæa arteria; and is manifest in the anterior heads of the digastrics, when deglutition is performed.

The digastric muscles are principal instruments in the compound action of deglutition, one part of which they are well adapted to perform, which is to pull the os hyoides upwards, and thereby to press the root of the tongue, &c. to the velum pendulum palati; for which purpose the only organs commonly mentioned, the stylo-hyoidei, stylo-glossi, and perhaps the stylo-pharyngei muscles, are too weak, considering the resistance they must meet with in raising so many parts, viz. the tongue, os hyoides, larynx, &c. whose muscles are to be stretched far beyond their natural tone. The fitness of these digastrics for such an office, is evident from their natural situation. For further evidence, let both heads of either one or both digastric muscles be pulled in the manner formerly mentioned, and the raising of the os hyoides will be seen: or let any one swallow either solids or fluids, while his fingers are applied below his chin, and he will feel the swelling, hardness, and shortening of these muscles then in action.

This being granted to be the proper action of the two digastrics, we may readily assign several reasons why one can scarce swallow any thing with his mouth open:

open: first, the lower jaw being then unstable and moving, these muscles have not a fixed point to resist their actions. Next, the jaw and os hyoides being brought nearer, the curve made by the tendon of each digastric muscle must be diminished, consequently the effect which the muscle would have on the os hyoides is also lessened, whereas it ought rather to have been increased, because the space between the velum pendulum palati and the os hyoides is increased by this bone's being brought down at this time. Lastly, the muscles which serve to draw down the os hyoides being now in contraction, they must prevent the action of the digastrici.

We may here also observe how advantageously the tendinous aponeuroses of the digastric muscles are stretched over the mylohyoidei muscles, for raising the root of the tongue along with the os hyoides; and how the stylohyoidei and digastric muscles may act more uniformly and in a more convenient direction, by the tendons of the latter passing through the substance of the former.

I come now to supply the function which I have endeavoured to deprive the digastric muscles of, but must previously remark, that the opening of the mouth does not only depend on the motion of the lower jaw downwards, but also on the superior jaw being raised up by the muscles which extend the head back: any one may convince himself of the truth of this, by putting the blade of a knife opposite to the conjoined edges of the teeth when the mouth is shut; which knife being held unmoved while the mouth is opened, he may, by the help of a mirrour, see the upper teeth raised remarkably at every aperture he performs. The larger share however of the mouth's aperture is, in the ordinary erect position of the head, made by the lower jaw's being brought down by muscles which are commonly appropriated to the tongue, os hyoides and larynx, which are capable of being applied not only to this use, but to some others that are generally overlooked.

In considering these muscles in respect of the lower jaw, imagine the sterno-hyoidei and genio-hyoidei, or the coraco-hyoidei and mylo-hyoidei to act at the same time, it is evident that the sternum and scapula being fixed in comparison of the jaw, these muscles may be looked on as digastrics, whose middle intersection is the os hyoides, and whose moveable insertion is the lower jaw. Imagine in the same manner the sterno-thyroidei, thyro-hyoidei, hyoglossi, and genioglossi to act all together, and they may be considered as two muscles with several bellies acting on the lower jaw, which they will be sufficient depressors of, in length, strength, and manner of insertion, without standing in need of assistance from any other muscles. Besides what might reasonably be deduced from viewing these muscles, and from pulling them in the direction of their fibres in a dead body, in proof of their being employed in depressing the jaw, we can be abundantly sensible of most of them acting when the mouth is opened, by laying our fingers on the teguments which cover them.

These muscles, by the jaw's descending, lose somewhat of the advantageous insertion which they have when the mouth is shut, for the os hyoides will descend so much less than the jaw-bone, as the contraction of the muscles situated below the os hyoides is less than the joint contraction of these muscles and of the others which go from that bone to the jaw. To mention an example, suppose the sterno-hyoidei and genio-hyoidei only to act, the chin will be brought proportionably so much farther down than the os hyoides descends, as the quantity of contraction of both sterno-hyoidei and genio-hyoidei is greater than the contraction of the sterno-hyoidei alone; in consequence then of the chin being brought nearer to the os hyoides, the muscles between these two bones come to have a more oblique direction to the jaw, or to have their angles of insertion diminished, and their force in pulling the jaw down on that account lessened. One advantage however is hereby obtained, that the

root of the tongue, larynx, &c. are not removed too far out of their place; and that loss of the advantageous insertion is compensated another way; for when the muscles above and below the os hyoides are considered as digastrics, it is evident that this bone being placed farther back than the insertion of the muscles into the jaw, a considerable curve must be made at the bony intersection of these muscles, and therefore by becoming straighter in their contraction, they must draw the os hyoides forward, by which this bone becomes more perpendicular to the jaw, and the muscles obtain necessarily a more favourable direction. But in all positions of the os hyoides in respect of the jaw, the obliquity of the muscles backward is great enough to oblige the condyles of the lower jaw, when advanced on the tubercles, to slide back into the cavities in the time of their action, by which luxations are prevented.

This motion of the os hyoides forwards and downwards, which may be felt by laying a finger on this bone when the mouth is opened, leads us naturally to account for the use of the ligament, which is sent out from the styloid process of each temporal bone, to be fixed to each appendix of the os hyoides; for its direction is exactly such as prevents this bone from being drawn too far out of its place by the muscles which open the mouth, whereas it can be of little effect towards supporting the os hyoides and other parts connected to it, unless it had been more perpendicular. The resistance which these ligaments make to the muscles below the os hyoides, is one reason why these muscles do not bring the os hyoides so far down proportionably to their lengths, as the others above it seem to depress the jaw in opening the mouth: which action I found to be performed by the several parts concerned in the following proportion; by straining I can open my mouth, when the head is in the most natural easy position, till the distance between my anterior dentes incisores is one inch and an half, to which the extensor muscles of the head contributed

somewhat less than half an inch by raising the upper jaw, the os hyoides descended about as much more than half an inch as the upper jaw wanted of it, and consequently the muscles between the lower jaw and os hyoides contracted one third of the whole space. I chose this straining posture, because any other degree of opening the mouth cannot well be determined; but I am at the same time sensible, that where no such violent contraction of muscles is required, the proportional motions of these parts will be different from what I have just now described them; and when the head is extended very far back, the lower jaw only is moved in opening the mouth, whereas this action is chiefly performed by raising the upper jaw when the head is bended much forward.

Supposing then the mylo-hyoidei, genio-hyoidei, genio-glossi, hyo-glossi, sterno-hyoidei, coraco-hyoidei, thyro-hyoidei, and sterno-thyroidei muscles, always to be employed in drawing down the jaw conjunctly, (whereof however in ordinary occasions some may be unactive) the force they are capable of exerting will be considerably less than that of the levators. From hence we learn how the whole parts being left to their natural action, the lower jaw is supported, and the mouth kept shut by the superior power in the levators; whereas the depressors in their voluntary contraction (which is vastly greater in all muscles than the natural) may be capable of overcoming the natural force of the levators. Hence also we see the reason of the jaw's falling down by its own weight, when the natural contraction of all the muscles is weakened by a palsey, drunkenness, or sleep; or how, on the contrary, the mouth is violently kept shut, when the muscles are præternaturally contracted, as in convulsions, inflammations, &c.

These muscles, which are so well adapted for depressing the lower jaw, are capable of performing very different functions when the lower jaw is kept firm by the muscles which raise it. If they act at different times, the most remarkable of their actions

will be these; the genio-glossi, hyo-glossi, genio-hyoidei, and mylo-hyoidei, will pull the os hyoides and tongue upwards and forwards: if with these the thyro-hyoidei act, the larynx will also be brought along with the other parts: if with all yet mentioned the sterno-hyoidei and coraco-hyoidei act, the larynx only will be brought nearer to the os hyoides: if the thyro-hyoidei alone act, the os hyoides and thyroid cartilage will approach each other proportionally to their mobility: if the sterno-hyoidei and coraco-hyoidei act with the former, the os hyoides will descend to the cartilage. If to these the sterno-thyroidei are joined, then the tongue, os hyoides, and larynx will be brought down. All the other combined actions of these parts are easily deducible from those mentioned. If these muscles act all together, and the jaw is kept firm at the same time by its levators, they have an effect not generally remarked, which is the bending of the head forward, the articulations of the head and of the superior vertebræ being the nearest moveable joints; and in this action these muscles must have very great advantage by the great distance of their insertion from the center of motion. As an evidence of the fact, let any one's head be pulled or pushed violently backward, his jaws are pressed strongly together, and his throat is tense, with the larynx advanced, while he strains to resist the force applied. This the painters seem to have been more sensible of than the anatomists.

The sum of all I have argued for concerning these muscles, may be drawn up in a few propositions:

The digastrics serve to draw up the os hyoides and parts annexed to it, in deglutition.

In opening the mouth, the head is extended, and the whole muscles of any considerable length and bigness situated betwixt the sternum and chin (except the digastric) are put into action; the os hyoides, &c. are drawn down and advanced forward; if the jaw-bone was brought forward, it is made to slide back.

When the mouth is kept shut, or the jaw-bone made firm by its levators in any degree of the aperture of the mouth, the range of muscles, just now mentioned, may either contract successively, and then they act as commonly described, unless that by being variously combined, they are differently determined to pull up one part or to depress another: or if all the muscles act together, they conspire to bend the head forward.

When the condyles of the lower jaw are luxated, the mouth stands open and cannot be shut; this Mr. Petit (a) ascribes to the direction of the fibres of the muscles which raise this bone, being so altered in respect of the condyles, that these processes come to be situated in a straight line drawn from the origin to the insertion of the muscles, and therefore these muscles can have no other effect than to press the condyles closer to the temporal bones: it is evident however that this cannot obtain in most of these muscles, as for instance, in the masseter and internal pterygoid, nay, the external pterygoid seem to gain as much more in this morbid situation as the temporal lose; and I have seen people labouring under a luxation of the lower jaw, whose mouth stood open to a certain degree, but they could still open it farther, and bring it back again by the elevator muscles of the jaw. The plain cause of the mouth's not shutting in the luxation, is the slipping of the coronoid processes under the anterior root of the zygoma, and their being pressed on that bone; which is one reason why, after attempting the reduction of such a luxation, by simply pressing or striking the fore-part of the jaw upwards, or after applying any other force which presses the coronoid processes violently upon the bones of the upper jaw, a tension and inflammation may be brought on the parts hereabouts, and particularly on the temporal muscles, which afterwards may be followed by all the other symptoms of a pricked, bruised, or wounded tendon, taken

(a) *Maladies des os*, liv. 1. cap. 3.

notice of by Hippocrates ; because the tendon of the temporal muscle of the luxated side must suffer these very injuries, by being intercepted betwixt the corone and the os maxillare.

I have more than once found Mr. Petit's method of reducing the luxated jaw-bone ineffectual, after the muscles had been swelled by unartful attempts of reduction, but have succeeded by a small improvement, which was, to wrap linnen so thick round my thumbs, that I could scarce introduce them betwixt the posterior grinders ; then taking hold of the base of the jaw with my fingers, and applying my palms under the chin, I pressed down and pulled forward the posterior part of the jaw, and at the same time thrust the anterior part of the jaw upwards with my palms, so that the jaw being made use of as a lever to which the last joint of the thumbs served as a prop, I acquired a considerable additional force, to which the muscles were obliged to yield, and the condyles were disengaged intirely from the zygoma, and brought down ; after which they slide backwards with the least assistance, and the reduction is fully made.

The origin and course of the chorda tympani being described by few authors, and scarce delineated by any in the natural position, and the figure easily admitting of the representation of the inferior maxillary branch of the fifth pair of nerves as it comes out of the skull, and divides into its branches, I have caused that nerve and the chorda tympani, which proceeds from that nerve, tho' I rather incline to think it a branch of the portio dura of the seventh pair united to the fifth to be painted. The chorda tympani takes its origin most frequently from that branch of the fifth pair which is bestowed on the tongue, but I have seen it sometimes rise from the trunk which furnishes the branch given to the tongue, and the other that enters the posterior hole of the lower jaw. The chorda immediately after its rise runs backwards, and outwards involved in a cellular substance, till it sinks within the bony part of the tuba eustachiana : the situation of

the

the skull in drawing this figure, would not allow me to delineate more of this chord, without destroying some parts that were chiefly designed to be illustrated here, wherefore I shall refer to tab. xiii. and vii. of Du Verney's *traité de l'organe de l'ouie* for what remains of it: and seeing the authors who have expressly treated of the nerves, pass the description of this generally very slightly, I shall translate Mr. Du Verney's description, which is the fullest and most exact I know.

“ The little nerve (says he, pag. 51.) that crosses  
 “ the tympanum, has its origin immediately from  
 “ the branch of the fifth pair of nerves, which de-  
 “ scends to be distributed to the side of the tongue ;  
 “ this little nerve ascends to the exterior side of the  
 “ bony part of the tuba eustachiana, and following  
 “ the course of the external (commonly called now  
 “ the oblique) muscle of the malleus over which it  
 “ lies, it enters by the same aperture into the tym-  
 “ panum ; then it passes under the tendon of the in-  
 “ ternal muscle, and descending obliquely from be-  
 “ fore backwards, it lies upon the membrane of the  
 “ tympanum, and passing before the long leg of the  
 “ incus, it at last escapes out of the cavity of the  
 “ tympanum, to enter into a small canal formed in  
 “ the os petrosum, and is joined to the portio dura  
 “ of the auditory nerve a little before the portio  
 “ dura makes its exit from its canal.”

The only remark I have to make on this description is, that I am at a loss how to understand the words, It lies upon the membrana tympani (a), for it does not appear to be immediately contiguous to that membrane.

I have also caused the tubæ eustachianæ to be represented in this figure in full view, that one, by suppling in his imagination the velum pendulum palati and uvula, depending obliquely from the edge of the palate bones, or by consulting Du Verney's tab. ix. fig. 2. may easily understand the true situation of the

(a) Il se couche sur la peau du tambour.

orifices of the tubæ, which some anatomists seem not to be well acquainted with, tho' it is a fact necessary to be exactly understood, especially if it shall be found that the method of injecting medicines by this canal for curing deafness in several cases, shall prove successful, which there is a great probability it should ; and of which Mr. Guyot gives a good instance (a). The instrument he made use of for injecting the medicines, is described at length by Mr. Garengeot, in his treatise of chirurgical instruments.

By authors neglecting to explain the method they took to represent the parts delineated in their figures, disengaged from all the others to which they are naturally contiguous and adherent in the body, I have often observed young anatomists at a loss to search out the parts, which they imagined they understood exactly the situation and structure of, from the representation which authors had made of them. To prevent such an inconvenience in the present case, allow me to inform the readers how the bones appear so bear, and yet the softer parts which were designed to be represented, are preserved entire.

The engraver of the following figure, drew it from a skull perfectly cleaned and placed in a proper attitude, at his leisure, and afterwards supplied the other parts from a recent subject, whose skull was nearly of the same dimensions, having previously made the bones as bare as possible, without boiling or macerating, and without injuring the soft parts designed to be illustrated ; which method has made the whole figure simple and beautiful.

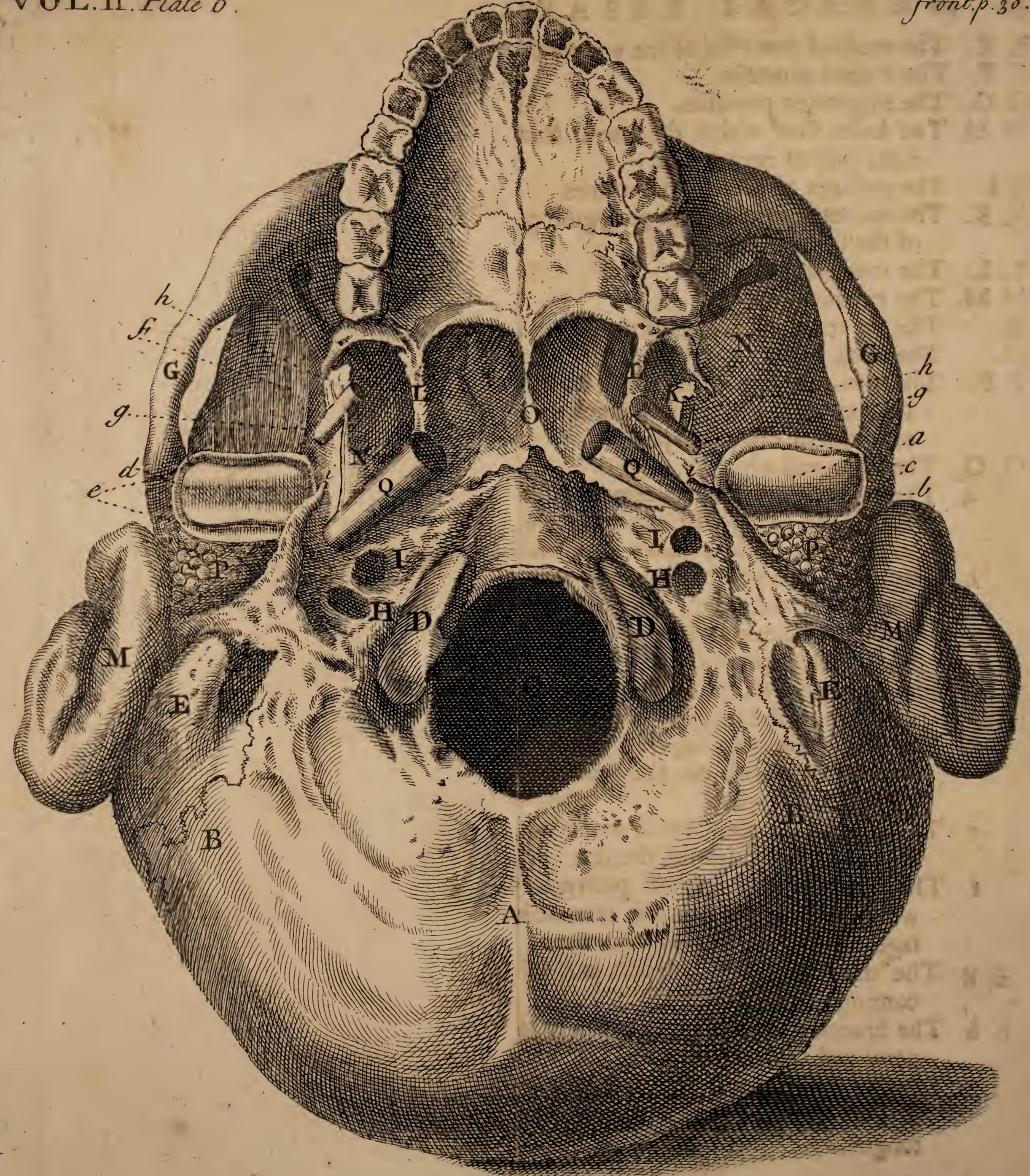
#### EXPLICATION of Plate VI.

- A. The occipital bone.
- B. B. The lambdoid suture.
- C. The great hole of the occipital bone, through which the medulla spinalis passes.
- D. D. The condyles of the os occipitis.

(a) Hist. de l'Acad. des Sciences, 1724.

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- E. E. The mastoid processes of the temporal bones.  
F. F. The styloid processes.  
G. G. The zygomatic processes.  
H. H. The holes thro' which the lateral sinuses and  
eight pair of nerves pass.  
I. I. The passages of the carotid arteries.  
K. K. The external wings of the pterygoid processes  
of the sphenoid bone.  
L. L. The internal alæ.  
M. M. The external ears.  
N. The left temporal process of the sphenoid bone.  
O. The back-part of the vomer.  
P. P. The part of the parotid glands lodged in the  
back-part of the cavities which receive the  
condyles of the lower jaw.  
Q. Q. The tubæ eustachianæ.  
a. The tubercle of the left temporal bone, on  
which the condyle of the lower jaw moves  
when the maxilla is drawn forwards.  
b. The cavity behind that tubercle wherein the  
condyle is commonly lodged. The sur-  
rounding ligaments hinder this cavity from  
being fully represented.  
c. The ligament which connects the moveable  
cartilage to the temporal bone.  
d. The moveable cartilage of the right side  
brought forwards on the tubercle that it  
might be fully seen.  
e. The circular ligament which connects the car-  
tilage to the condyle of the jaw.  
f. That part of the external pterygoid muscle  
which is inserted into the moveable carti-  
lage, and serves to pull it forwards.  
g. g. The third branch of the fifth pair of nerves  
coming out of the skull.  
h. h. The branches of that nerve given to the tem-  
poral and masseter muscles.  
i. i. The chorda tympani sent off from the branch  
of that nerve which is distributed to the  
tongue.





The description and uses of the *intestinum duodenum*; by the same. Vol. IV. art. II.

THE description and draught of the *intestinum duodenum*, as given by most anatomists, appearing faulty, has occasioned this paper, to rectify their omissions or mistakes.

From the pylorus, which is raised upwards and backwards from the stomach, the duodenum descends obliquely to the right side, with the anterior lamella of the omentum fixed to its inferior part, and the little omentum, proceeding from the opposite part, to connect it to the liver. After this the duodenum is involved for about an inch and an half in a duplicature of the omentum, and then enters into the duplicature of the mesocolon, where it cannot be seen without dissecting away that fatty membrane. It descends in this cellular sheath, till it is almost contiguous to the great sac of the colon, which properly is the human cæcum. In this descent the colon lies before it, the bilary duct, hepatic artery and nerve, *vena portarum*, and emulgent vessels are behind it. The liver, gall-bladder, and right kidney, are on its right side, and the pancreas is on the left. This gut makes several turns in this progress, for it is raised into a convexity forwards, where it passes before the vessels of the liver. Immediately after it bends backwards, and to the right side, till it approaches the right kidney, and then turns forward, and a little to the left, in its course towards the great sac of the colon. The duodenum then makes a considerable curve to the left side, where it is involved in a cellular substance, which may be looked on as the common root of the mesentery and mesocolon, thro' the membrane of which it may be commonly seen. In the left concave side of this curve, the thick extremity of the larger pancreas and little pancreas are lodged; the superior mesenteric artery and vein coming through the

the notch between the larger and lesser pancreas hang loose before the gut here; and the ductus communis cholidochus, after passing behind the gut a little higher, unites commonly with the pancreatic duct, very little above the lowest part of the curve; and after passing obliquely through the coats of the gut, the two ducts open by one common orifice in the posterior part of the duodenum. After the curve just now described, the duodenum is involved in the root of the mesentery, and mounts obliquely within it towards the left side, with the vena cava behind it; and after a course of about four inches, rises forwards to acquire a proper mesentery, or to commence the jejunum, the membranes of the root of the mesentery seeming to make a ring, at which the gut comes out, tho' they are really continued on the intestine, and form its external membranous coat.

That all the duodenum may be exposed to view, without changing its natural situation in a body lying supine, it is necessary to cut through the great arch of the colon below the bottom of the stomach, and after turning the cut extremity of the left side over, on the left short ribs, to take hold of the other extremity of the colon; and having separated it with a pair of scissars from the stomach and liver, taking away with it as much of the omentum and mesocolon as obstruct the view of the duodenum and pancreas, to lay it likewise on the right loin. When the colon is removed, observe where the roots of the mesentery and mesocolon prevent your seeing the course of the duodenum; at such places cut these membranes with a very sharp scalpel, directing the incisions according to the length of the gut, and then cautiously separate the membranes to each side, till all the intestine is in view. Lastly, draw the small guts gently down, raise the liver, and suspend the fundus of the stomach, as much as is necessary to allow a full view of the whole course of the duodenum.

This description is taken from an adult body, and the picture from the body of a foetus preserved several years in acidulated spirit of wine. Afterwards I compared this picture with several adult bodies, to make sure of there being no essential difference.

In PLATE VII. Fig. 1.

- A. A. Represents the liver, larger proportionally than in the adult, and raised so that its concave side is in view.
- B. The umbilical vein entering the liver. This vein is commonly described, as passing to the vena portarum, without sending off any branches: but in all the human foetuses, or young children, which I have dissected, after their vessels were injected, I found the umbilical vein giving off vessels to the liver, in its passage thro' it towards the vena portarum.
- C. The gall-bladder full of bile, of a more pyriform shape than it usually is in an adult.
- D. The stomach distended with air.
- E. The remains of the omentum.
- F. F. The extremities of the divided arch of the colon laid to each side.
- G. The pylorus where the duodenum begins, and the little omentum connects it to the liver. From this to H it is covered by the omentum. Between H and I it is lodged in the cellular substance of the mesocolon; thence to K it is covered by the common root of the mesocolon and mesentery. It runs involved in the mesentery to L, where there is an appearance of a ring; but instead of being turned down afterwards (as here represented; because of the guts being drawn much down, to have a full view of the duodenum) this gut makes the curvature delineated in fig. 2.

- M. The large pancreas, with its duct, which is more hid by the stomach in an adult.
- N. The little pancreas with its duct.
- O. The meseraic artery and vein cut as they pass in the nich between the larger and lesser pancreas.
- P. The ductus communis cholidochus appearing on the left side of the gut, where it is about to join the pancreatic.
- Q. The right kidney.
- R. The small guts.

From this description of the duodenum it appears,  
 1. That since it is involved in the cellular fat substance of the omentum, mesocolon, and mesentery, and is not braced into a firm membrane as the other guts are; it must more easily yield to any distending force: and having the whole substances thrown into the stomach with the bile, and pancreatic juice poured into it, it must receive more than any other intestine; and then whatever enters it, must go out with some difficulty, because its extremity, next to the jejunum, is fixed in a course almost perpendicularly upwards. Upon the whole, it is no wonder that this intestine is frequently found so large, as to be called ventriculus succenturiatus.

2. The ascending course of the extremity of this gut, and the influx of the bile and pancreatic liquor into the most depending part of it, where the food makes the longest stop, are wisely contrived both for the more easy influx of these liquors, and for a sufficient quantity of them being mixed with the food.

3. A pendulous intestine here would, in our erect posture, have drawn the stomach out of its due situation, and might have twisted or overstretched the bilary and pancreatic ducts, so as to have stopped the course of the liquors in them; and therefore it is firmly tied down in its whole course.

The duodenum of brutes is likewise placed in such a manner, as to answer the same useful purposes.

Apes,





Apes, whose posture is for the most part erect, or near so, have these parts disposed in near the same way that man has.

In dogs, cats, cows, sheep, and most other quadrupeds, whose posture is horizontal, the pylorus and beginning of the duodenum are firmly connected to the liver; after which a considerable piece of gut, with a mesentery, hangs pendulous, and then the gut is fastened to the loins and back-bone; therefore the pendulous part must be lowest in them. The biliary duct opens into the duodenum, where it is tied to the liver. The pancreas is long, and lodged in the mesentery along the pendulous gut, and its duct is near the middle of that gland.

Hens, ducks, geese, and other fowls, whose posture of body is neither erect nor horizontal, but oblique, have the beginning of the first small gut well secured to the liver, from which the gut runs near to the podex, and returns again to near the same place where it began at, to be again tied to the liver, all between these two connexions being pendulous. The pancreas is fixed between these pendulous parts, and its ducts open into that part of the gut where it had returned back to the liver, as the biliary ducts also do, but with a direction opposite to the course of the aliment in the gut. After the entry of these ducts, the intestine runs a good way along the concave part of the liver towards the membranous diaphragm, being fixed to the liver and to the air membrane, which lines the abdomen. At length the gut makes a curve to the right side, and takes its course towards the podex.

In cod, haddocks, and such fish, the cæcula, which are esteemed analogous to the pancreas of other animals, surround the first gut, soon after it comes from the stomach, and then the intestine is fastened to the liver, where the biliary duct opens into it.

If then we consider what quantities of different substances enter the duodenum, we need not be surprised that this gut should be more subject to maladies

dies than any of the rest, especially since it has not such a firm covering as the other guts have. And if the gut itself suffers, how soon must it disturb many other functions of the animal oeconomy, by the pressure it may make, when over-stretched, upon so many large vessels, nerves, and other organs, to which it is inseparably contiguous; or by communicating its afflictions to those parts which sympathize with it by means of the common origin of their nerves, or by stopping the influx of these two absolutely necessary liquors, the bile and pancreatic juice.

In diseases of the epigastric, or hypochondriac regions, care should be taken not to confound such as have their seat in this gut with others, which require very different treatment. This caution is the more necessary, because authors generally take little or no notice of the duodenum as the seat or cause of any particular disease.

*Miscellaneous remarks on the intestines; by the same. Vol. IV. art. 12.*

**T**H E intestines are said to be covered all over with a membranous coat derived from the peritonæum: but a considerable part, a fourth at least, of the human intestines, is not covered with such a membrane; for the mesentery being formed by the peritonæum produced on each side, and including a considerable quantity of cellular substance, in which much fat is frequently contained, together with the glandulæ vagæ, the mesenteric arteries and veins, the nerves, lacteals, and fat cellular substance being thick, till after the membrane of each side is continued some way upon the gut, all the space between the membranes has no such firm membranous coat covering it, and therefore more easily yields to any stretching force, without over-stretching the vessels.

In this space between the insertion of the blood-vessels, the longitudinal fibres of the guts can be seen distinctly and easily, because the cellular substance is separated

separated with little trouble, or collapses so much as not to hinder the view of the fibres under it.

I need scarce observe that the circular fibres of the guts are often so interlaced, that one can scarce trace the same muscular fibre round the whole gut.

It is generally known, that all the substance between the interior side of the circular muscular fibres of the guts and villous coat, which used to be divided into the vascular, glandular, and nervous coats, can, by blowing into a piece of gut whose interior side is turned outwards, be raised into a tunica cellularis, with numerous vessels running every where through it; without any fat in it, where however it appears there is some secretion performed; for by injecting water into the arteries, these cells are filled with it; and frequently, after making injections of grosser coloured liquors, I see a secretion performed, by the cells being here and there distended with the white injected substance, while the colouring powder does not pass with it. When this secreted liquor hardens, it forms a number of small, round, or oblong tubercles, which several imagine to be Peyer's glands filled with the injection; and this Ruysch (a) seems likewise to think. I can't yet bring myself to that opinion, because water diffuses itself so equally every where, and injections which harden do frequently the same for a large space; at least these make it evident, that if Peyer's glands are sometimes injected, there are also vessels which convey liquors into this internal cellular membrane; which may lead us into a reasonable account of the great discharges of mucus, after an excoriation of the guts, and of the hard tubercles which are frequently seen within their muscular coats, and of several other phænomena of diseases.

In preparing a piece of gut in the manner mentioned for demonstrating its internal cellular coat, we have a good view of the tunica villosa in its membranous form; when the cellulæ are fully distended with

(a) Epistol. 11. Respons. & sparsim.

air, the villous coat loses the downy, papillous, and mammillary appearance which it has when the gut lies floating in water.

Upon observing this villous membrane when it is stretched, and how thin and flexible the cuticula becomes upon the lips, with the continuation of the same membrane in the mouth, tongue, fauces, œsophagus, stomach, and intestinal canal; and upon comparing the properties which the external common covering of the body has, with those of this villous membrane, they seem to be much of the same kind, if not the same continued substance.

The cuticula is pervious to liquors going out of the body, and to others coming into it; so is the villous coat of the intestines; and both of them have other passages through them, whereby they allow certain substances to penetrate to the nerves which they cover. Thus a numbness is brought on the skin by immersing any part of the body in several sorts of liquors; and pain is raised by substances which do not destroy the cuticle; thus sapid objects affect our tongue, and the different sensations arise which we frequently feel from the contents of the stomach and intestines.

The external epidermis, by being exposed to a variety of different forces acting on it, is of very different thickness and firmness in several parts; but it is naturally so flexible, as to allow a sufficient impression of tangible objects on the nerves below it. The internal membrane of the guts is less exposed to a variety of such causes, and therefore is more uniform, but can be changed in the same manner by like causes. And hence frequently we find the interior surface of the stomach and guts of a callous hardness, and almost insensible, while usually it is very sensible, and so flexible, that being connected to the loose cellular substance, it hangs floating, and assumes any shape the contractile fibres of these cells give it, whether of large rugæ called valves, or of smaller papillæ of different forms.

Thin

Thin watery saline liquors wash away the cuticula, thick mucinous substances protect it against them, and the bad effects of friction ; therefore, wherever the cuticula is exposed to such injuries, its defence is likewise provided. Thus the eye-lids are defended against the tears, and their mutual collision, by the sebaceous matter separated in their glands ; the nipples, armpits, glans, urethra, perinæum, &c. are all protected in the same way. When their defence is wanting, excoriation, pain, inflammation, &c. follow. The internal membrane of the guts being more exposed to the action of watery liquors, has a more plentiful supply of the protecting liquors, and is in a sound state lined with mucus.

A moderate degree of friction makes little or no change on the cuticula ; but a violent one gradually applied, makes the cuticle become thicker, stronger, and firmer, as we see in the soles of the feet, and in the hands of labouring people. Experience shows that sudden violent friction either rubs the cuticula imperceptibly off, or separates it from the skin. The villous coat of the intestines is not exposed to such accidents as the surface of the body, and is better defended by slime from the bad effects of attrition, while the abrasion of this coat may well pass unobserved : but the thickening and hardening of the cuticula by friction, may however be seen in the intestines, when any hard concreted substance is lodged a considerable time in the guts, for then the internal surface of the intestines becomes there thick and hard.

The epidermis seems to serve for contracting the extremities of the cutaneous vessels, probably by forming their extremities ; for whenever it is separated, these vessels throw out their liquors in much larger quantities than ordinary. If these liquors were all thrown out of their vessels between the skin and cuticula, and thence gradually escaped through the interstices of the cuticular scales, there would perpetual blisters be raised in the depending parts of the

body, if not all over the surface of it, and the liquor in blisters would escape through these interstices. The same effusion of liquors is made into the intestines, on the separation of the villous coat, in diseases, where the tongue and throat shew the excoriated state of the alimentary canal.

When any part of the cuticula is separated from the skin, but still is continued with the adherent scarf-skin, it becomes thicker, especially if soaked with liquors. Thus the cuticle of blisters, and what separates from the edges of wounds and ulcers, is frequently very thick. The same thing happens in the alimentary tube, as is evident in apthæ. This observation accounts for the tubular thick substances voided at the anus, which have been taken for pieces of the guts.

The epidermis is the most incorruptible, and least subject to erosion of any part of the body. In abscesses the pus has little other effect on it than to separate it from the skin, and to tear it by its weight, but not to dissolve it. In gangrenes and sphaceli it remains uncorrupted, after all that it covers is converted into a putrid mash; nay, it can allow the common lapis septicus to penetrate through it, and dissolve the parts below, without suffering a solution of its own substance. This may be owing to its having no proper vessels or liquors. The tunica villosa enjoys the same advantages in both.

These membranes, tho' indissolvable, are however separable from the parts they cover, the consequences of which are bad; therefore they are the most easily and quickly regenerated of any organs in the body which are not of the same structure.

I never saw the appendix vermiformis of any of the human foetuses which I have dissected, distended with meconium, and therefore cannot allow it to serve as a reservoir of the fæces during gestation. From the numerous mucous lacunæ in the human appendix, and the like structure in the cæca of brutes, its use appears to be to furnish mucus, to lubricate the internal

ternal surface of the great sac of the colon, and to moisten the fæces in it, that they may be more easily pushed forward out of this part of the gut, where there is the greatest difficulty in their progress, and where, by stagnating too long, they may bring on troublesome symptoms ; witness the disease called *placenta intestinalis*.

The proportional lesser size of this little gut in an adult more than in a foetus, depends on the pressure it suffers, and being emptied so frequently of its contents ; whereas in a foetus there is no respiration to squeeze it, and the meconium in the sac of the colon prevents its being emptied ; so that the liquor separated by its glands being collected there, relaxes its fibres and distends it.

The neglect of considering what the different forces are which act upon the several organs of the body, while in a foetus state, and after birth, has in my opinion contributed to many disputes, which might have been put an end to by accounting for the phænomena which were the subject of them in this way of reasoning. I shall mention one remarkable difference in the circulation of the blood, and some few consequences from it.

Though the heart and arteries of animals are able by their action to keep up a circulation in the larger vessels, yet without assistance from some other powers, they cannot propel the liquors with velocity enough, and in sufficient quantity, through the small vessels. These assisting powers, after birth, are the alternate pressure of respiration, and the action of the muscles. We can observe at any time how much the circulation is quickened by increasing these, and on the contrary how much all the secerning organs are infarcted and stretched by their almost stagnating fluids, whenever one of them, muscular motion to wit, is little exercised. Thus creatures turn fat when they have not exercise. Hence a recruit of all the necessary liquors in time of sleep ; hence the strong slow pulse of sleeping people ; hence the desire of continuing sleep after

a person has slept beyond his ordinary time ; hence the small waste of such creatures as continue long in a dormant condition, without any supply of food ; hence a dry, parched mouth in the morning, which is soon relieved by chewing ; hence stillness and laziness after abstaining from exercise too long ; and a great many other phænomena which will occur to any upon the least reflection.

Since then the heart and arteries of fœtuses have little or no assistance from any alternate pressure in propelling their liquors, their secerning organs must also be stuffed up and distended, and therefore of a larger proportional size than in the adult.

It is commonly said, that the thymus and glandulæ renales lose more of their proportional size in the adult than the other organs. Admitting this as a fact, tho' on comparing them with the brain and some others, it is doubtful, it will not bring us under any necessity of searching out some particular use which they serve in the fœtus ; for, a view of their circumstances, as to situation and pressure, will account for all the differences observable in them. To understand this aright, it may not be amiss previously to consider one or two causes which may influence the growth of animal organs.

1. The growth of the parts of the body will be greatest where they are least confined, and least exposed to pressing forces. The brain is at first inclosed in membranes, and is prodigiously large, in proportion to the other members ; as the bones of the skull become firm, its proportional size diminishes ; and after they are fully joined, its proportional increase is very little. The testicles, on the contrary, are at first confined within the abdomen, and small ; afterwards, when they fall down into the loose bag, the scrotum, they increase much faster.

2. The greater the force is with which the fluids are thrown into parts, or the greater the resistance is to the liquors, the more the bulk of the part will be increased. A hand swells upon pressing the veins of the arm ;

arm; a tumor in the urethra near the *caput gallinaginis*, occasions a swelling of the testicles.

To apply these principles to the thymus and glandulæ renales, we need only call to our remembrance the situation of the one, in the double mediastinum, between the heart and its large vessels, and the sternum, with the lungs on each side. The other lies on the muscular appendix of the diaphragm, covered before by the chylopoietic organs. Neither of them have any excretory canal, except the lymphatic vessels are esteemed such. The veins of both have a short course, and that of the glandulæ renales is remarkably large.

The greater pressure which the thymus suffers after birth, from the increased action of the heart and of the lungs, is altogether evident. The immediate play of the diaphragm upon the other, shews as evidently that there are scarce any glandular parts in the body, the change upon which, as to pressure, is greater after birth, to what it was before, than in these two; and therefore, by our first proposition, they should suffer in their growth upon this account. But to this is to be added the thinness of the fluids sent from them, and their short course in large vessels, which are almost peculiar to them; by which their vessels must be less distended, and consequently their encrease less, by proposition 2.

These organs perform the office of lymphatic glands, both before and after birth, and dilute the chyle and thick blood, which is soon after to be returned to the heart.

*Remarks on the coats of arteries, their diseases, and particularly on the formation of an aneurism; by the same.* Vol. II. art. 16.

**A**S an aneurism is a disease which has been never duly examined, nor rightly understood by any authors, the following remarks on the coats of the arteries and their diseases, particularly the aneurism, may

may be of use to the public. To these is subjoined a plate, representing the arteries of the arm, with some reflections on the aneurism occasioned by venæsection, which more frequently than any other admits of a cure.

Though some of the arteries receive a strong covering from the contiguous parts, such is the membrane which surrounds the aorta as it comes out of the pericardium, which is described as their exterior coat; yet as this is found only in particular places, serving to strengthen an artery, where it is more than commonly exposed to the force of the circulating fluids, it ought not to be reckoned among the coats of the arteries in general. The arteries are covered with a cellular substance made of fine pellucid membranes, capable of being suddenly and greatly distended without injury, and contracting as quickly.

There is always an oily liquor in the cells of this substance, and the vessels of the arteries run in it, sending branches on the cells for the separation of the oil. As all the arteries have such a substance as above described, I reckon it as one of their coats, though the same kind of substance is common to all the flexible parts of the body (a). The use of this cellular substance of the arteries, is to connect them to the circumjacent parts, without impeding their motions, to afford a safe passage to the vessels of the other coats, and to contain an oil to keep the interior coats flexible.

The first proper coat of the arteries is muscular, consisting of annular fibres strongly connected together. To these is owing the contraction of the artery after it has been distended by the systole of the heart, and the elasticity of the substance which joins the annular fibres, is remarkable in the quick contraction of an artery after it has been stretched longitudinally. The innermost coat cannot be seen rightly in a recent subject, because it is extremely thin, and adheres firmly to the muscular coat: but when the

(a) See Boerhaave's preface to his edition of the *Autores varii de merbo Gallico*.

arteries are kept some time, their texture is easily unravelled by putrefaction ; this coat separates easily, and shews a great many inequalities on the interior surface, with vessels on it, and a cellular substance, which joins it to the muscular coat, but there is no appearance of a muscular structure ; it tears easily, and bears a strong resemblance and analogy to the villous coat of the intestines. This coat prevents any fluids passing into the cellular substance of the other coats, and renders the surface of the arteries smooth and polished ; it has also vessels which separate a liquor to lubricate its interior surface. From the above explanation of the cellular coat of arteries, it is plain that obstructions are apt to be formed in this part, which will produce various diseases, as well as in the tunica cellularis elsewhere in the body, which is the seat of numerous diseases said by some to affect other parts.

In this membrane Boerhaave (a) places inflammations ; and this is what turns into pus in all suppurations. The diseases of the external coat of the artery may diminish its diameter ; if the oil in the cells be too thin, the muscular coat will be too much relaxed ; if the oil be in too small a quantity, the artery becomes less flexible than it should be ; and if the matter turns acrid, it may destroy the muscular coat ; but this it cannot easily do, because of its firm texture. Hence we seldom find an hæmorrhage from arteries, though long soaked in pus. The muscular coat may become too rigid, or too lax, convulsed, or paralytic : but these disorders will not appear very plain, because of the action of the heart upon the artery, and the elasticity of this coat. The internal coat, from its structure, seems liable to much the same diseases as the external one, making allowance for the great compression the former must suffer from the blood on one side, and the re-action of the muscular coat on the other ; the effect of which may be understood from what I have formerly said on this

(a) Boerhaav. ibid.

subject.

subject (a). In the internal coat only are found bony or calculous concretions : sometimes this coat becomes so thick, as to almost stop up the cavity of the artery ; and frequently purulent matter is found in it.

As a great many disorders may arise from the morbid state of this coat only, and as no authors have remarked how far the animal oeconomy may be disturbed thereby; I offer the following queries : May not irregularities of the pulse arise from it, and also the tabes purulenta ? Will not an erosion of this coat, and the blood ouzing through it, better account for the ecchymoses, frequent in diseases where the blood is acrid, than the bursting of the vessels can do ? Are not the small vessels, in which the fluids move slowest, more liable to this disorder than the larger ones ? Thus it appears that no aneurism can arise but from a fault of the interior coat. We shall next consider how the coats may be so vitiated as to produce an aneurism.

1. When an artery is opened, and the orifice thro' the integuments is corresponding to it, an hæmorrhage only ensues ; but if the orifice of the skin is smaller than that of the artery, the adjacent cellular membranes will be filled with blood ; and so what we call a spurious aneurism is produced.

2. If the opening in the artery is very small, and the blood can't pass through the integuments, it will soon coagulate, and so prevent the succeeding blood from passing into the tunica cellularis, which will be formed into a lamellated membrane, by the oil being squeezed out ; while the blood becoming harder by pressure, will seem of the consistence of a polypus.

I have been often surprized at such a sudden change of the arterial blood ! several instances I have seen in amputations, where the patient fainting, an artery had been neglected to be tied, which in a few hours after has occasioned an hæmorrhage, notwithstanding the usual applications and a tight bandage. Upon re-

(a) Accounting for ossification in the anatomy of the human bones, part 1.

moving the dressings, I have found the blood grown hard, of a pale colour, and fibrous texture. Since then the blood is contained in a membranous substance, the disease in this case will appear like an incysted tumor, attended with a pulsation, which at length, from the great quantity of the coagulum, and the resistance of the parts, will not be perceived; and till the concretion is grown very large, the tumor will be lessened on compressing it, the blood returning back into the artery through the perforation. Thus a tumor, with all the symptoms of a true aneurism, is formed; though the principal definition, viz: the distension of the coats of the artery, be wanting.

3. If the muscular coat only be divided, the internal one will be forced between the divided fibres; and as it is incapable of being distended much without breaking, the case must be reduced to one of the former suppositions.

4. If only part of the muscular coat has been divided, the remaining fibres will resist the force of the blood; in which case they will unite, especially if divided transversely with a sharp instrument; but when there is a loss of substance, or a longitudinal incision, the aperture will be stopped by syssarcosis; but in neither case will any sort of aneurism ensue, unless more fibres afterwards give way to the impetus of the blood.

5. When part of the fibres are cut or broke, we can suppose such a proportion remaining, as to be almost able to resist the fluids, but which gradually giving way, will at length form a true aneurism. But besides the chances against such an equilibrium between the artery and the blood, I must observe, that though membranes in general thicken as they are stretched, yet the muscular fibres separate; therefore if the annular fibres of the artery were once separated, the internal coat would soon give way, and the blood form one of the tumors before described in § 1 and 2.

6. If a small part of the muscular coat becomes paralytick, it will yield to the force of the blood; which will form what is commonly called a true aneurism. We must here suppose a partial palsy gradually coming on, otherwise the fibres being separated, and the internal coat bursting, it would be of the kind mentioned in § 5.

But such a palsy as this very rarely happens, because of the great sympathy and connexion of the arteries, the pulmonary artery and aorta making each one hollow muscle from the heart to the minutest branches; and I never observed a palsy that affected only one part of a muscle while the others continued healthy.

7. The only supposition I shall make concerning the interior coat of arteries being affected, is a solution of its continuity, which may happen by a violent dilatation of the artery, or other causes, such as suppuration, &c.

I am not certain that the want of this coat can produce an aneurism, but shall offer the following conjecture.

When this coat is removed, a part of our fluids may pass into the cellular membrane, which join the muscular fibres together, and at last pass through it into the external cellular coat. This way of thinking was owing to the observation, that liquors readily pass through cellular membranes, and that air easily passes through all the coats of the intestines when the villous is removed.

Upon the whole, what is called a true aneurism must be very seldom found, especially when we consider that the remoter causes are said to be wounds, bruises, crying, &c. all which make a violent effort on the arteries, and do not answer to the suppositions of the manner in which this disease is produced. I have read a great number of histories of aneurisms besides those of Dr. Friend (a), but could find only two or three that were dissected, so much as alledged to have

(a) History of Physic, vol. 1.

been true aneurisms, and not one in which the sac consisted of annular muscular fibres, the just criterion of the true aneurism.

*Reflections on the aneurism, occasioned by blood-letting; by the same.*

**T**H E figures I have sent you, will give a better idea of the situation and course of the arteries of the arm, than words can; the explanation of them is as follows:

Plate VIII. Fig. 1. Represents the most ordinary distribution of the humeral artery.

1. A part of the pectoral muscle.
  2. The biceps flexor cubiti.
  3. The coraco-brachialis muscle.
  - IV. The brachia<sup>e</sup>us internus.
  4. The brachia<sup>e</sup>us externus.
  5. The brevis and longus extensor.
  6. The pronator radii teres.
  7. The supinator radii longus, and extensor carpi radialis, drawn outwards by a thread.
  8. The supinator radii brevis.
  9. The flexor carpi radialis.
  10. The common origin of the palmaris longus and flexor carpi ulnaris.
- A. The trunk of the humeral artery giving off branches in its course to the neighbouring muscles.
  - B. The place below the joint of the elbow, where it is about to split into its two large branches.
  - C. The radial branch.
  - D. The common trunk of the ulnar and median arteries.
  - E. A branch going off from the humeral artery above the elbow, toward the internal condyle, behind which it anastomoses sometimes by a large canal, with a branch sent

up from the ulnar; oftner they communicate by a great many small branches, and frequently I could not discover any conjunction of these two arteries.

- F. The part of the humeral artery where it commonly begins to be covered by the aponeurosis of the biceps muscle.
- G. A branch sent up from the radial artery behind the external condyle of the os humeri, to anastomose with such a branch of the humeral artery as E is.

The same parts are pointed out in the three following figures, by the letters and cyphers employed in the first figure, which makes a repetition of their explication needless.

Fig. 2. Is borrowed from Mr. Cowper's scheme of arteries (a).

- α. Is a branch sent off from the humeral artery to anastomose behind the internal condyle of the humerus, with the artery β, which comes from the trunk of the ulnar and median arteries.

H. The ulnar artery.

I. The median artery.

- k. Branches given to the muscles of the hand from the humeral artery, just as it is about to split into its branches.

Fig. 3. Shews the humeral artery divided into two great branches, as it is coming out from the arm-pit. These branches are represented as if they lay at each others sides, which the oblique view I gave of them to the painter obliged him to; but the one γ, which afterwards becomes the radial, is placed directly anterior to the other in the subject, the ulnar δ lying pretty close to the bone.

(a) Appendix to the anatomy of human bodies, tab. III.

Fig. 4. Represents the humeral artery splitting near the middle of the arm,  $\epsilon$  being the larger anterior more superficial branch, which goes on to divide as the humeral artery in fig. 1. does, while the lesser branch  $\zeta$  runs close on the bone to open into the common trunk of the ulnar and median arteries.

H. The ulnar artery.

I. The median artery.

L. The branch marked  $\beta$  in the second figure.

Note, The muscles 6, 9, 10, are here cut through, and hang over the cubit, while those marked 7 are drawn outwards, that the arteries might be distinctly seen.

I still preserve the arms represented by fig. 1, 3, 4.

By the distribution of the humeral artery in fig. 1, it appears that the artery which is in danger of being hurt in blood-letting of the arm, is the trunk of the humeral artery, and that the lancet must pierce the tendinous aponeurosis of the biceps muscle, before it touches the artery; and this is confirmed by proper experiments.

Sometimes, when the median vein is opened lower than usual, the radial artery may be hurt near its rise from the trunk; so that it is impossible to make any ligature on the artery above the aperture; and therefore the humeral artery must be tied, if the operation of the aneurism is performed.

It is in vain therefore to expect that any pulse should be felt at the wrist, after the operation of the aneurism is performed; but the want of a pulse there does not indicate the amputation of the member, because the numerous small anastomoses may be sufficient to keep life in it, and may possibly be gradually enlarged so much, as to restore vigour and strength to it.

When the operation of the aneurism is performed at the bending of the elbow, to one who has the anastomosis represented in fig. 2, the humeral artery

must be tied, but the pulse at the interior side of the wrist will continue, and probably that on the exterior side will soon be restored, because the blood may have the short retrograde motion from the insertion of the anastomosing tube into the ulnar artery, to the place where the radial artery begins, without any great diminution of its momentum.

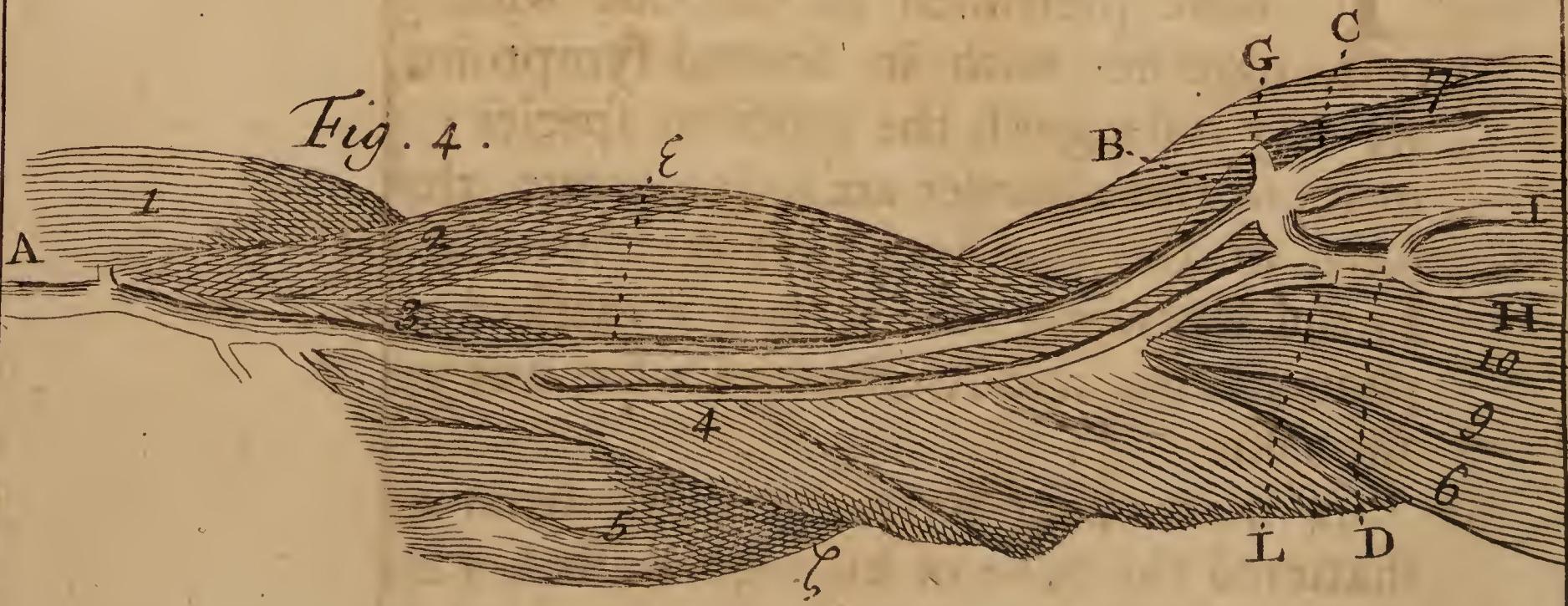
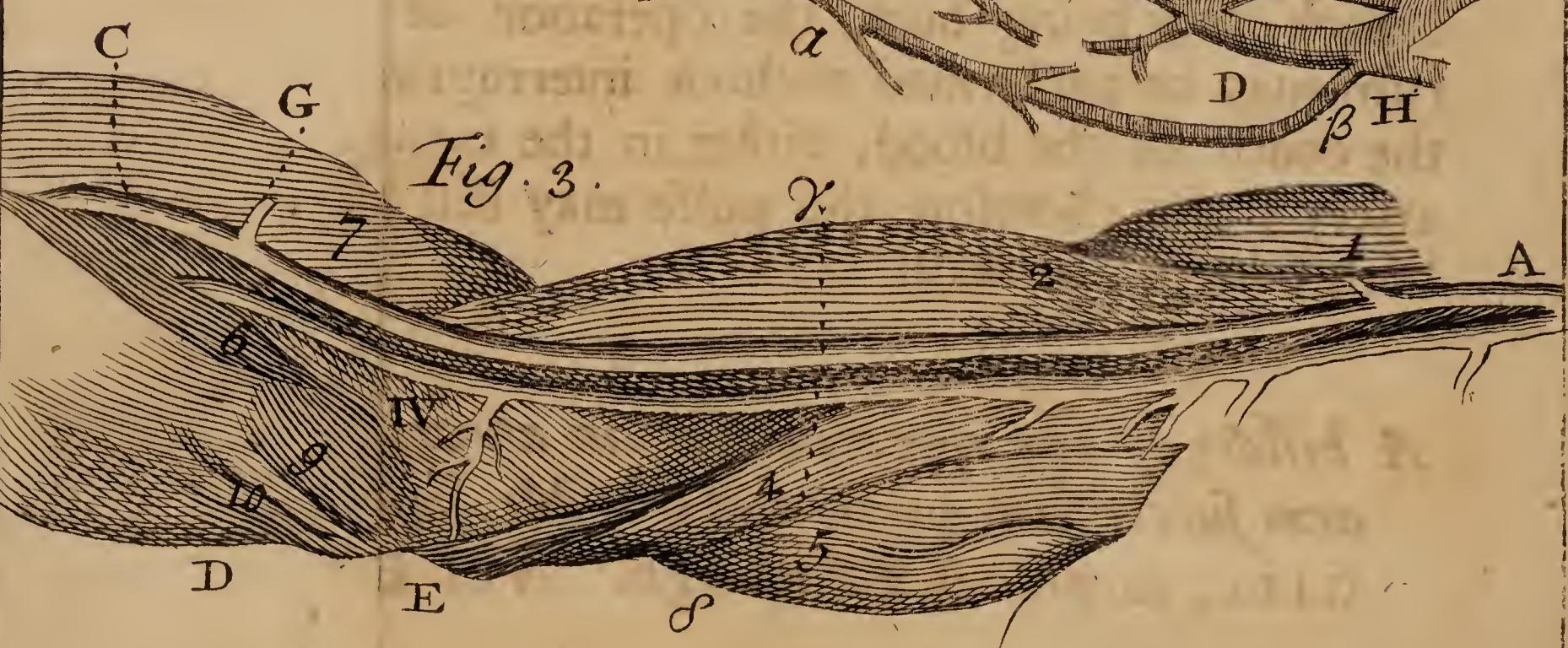
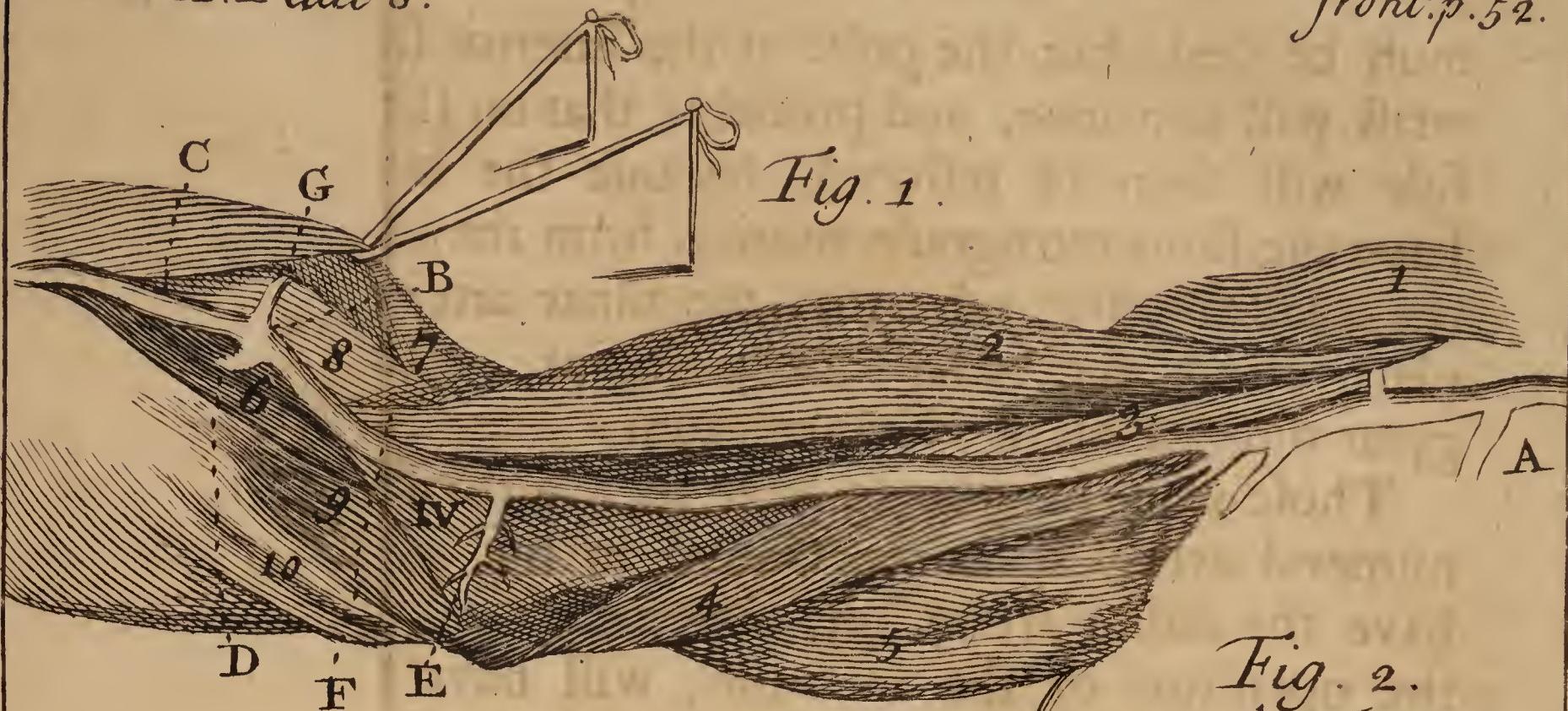
Those who happen to have such a division of the humeral artery as is represented in fig. 3, can only have the radial artery hurt in venæsection; and after the operation of the aneurism, will have a stronger pulse than formerly in the interior side of the wrist, but will probably want it in the exterior side.

If the vessels anastomose as in fig. 4, the anterior branch only being hurt, the operation of the aneurism may be performed without interrupting entirely the course of the blood, either in the radial or ulnar artery; and therefore the pulse may still be felt on both sides of the wrist.

*A history of the operation for an aneurism of the arm successfully performed; by Mr. JOHN MAGGILL, surgeon in Edinburgh. Vol. II. art. 15.*

THE disease which we call an aneurism, authors have pretended to describe with great exactness, together with its several symptoms, by which we may distinguish the different species; yet the histories of this disorder are so inaccurate, that the symptoms of the true sort have occasioned much dispute. In the following case I have remarked the progress, phænomena, and structure of what was judged a true aneurism.

A man about forty, by a fall from a coach-box, shattered the bone of his leg, in such a manner, that it was necessary to cut it off: the third day after the operation he was let blood in the basilic vein; the patient felt a sharp pain when the vein was opened, and four days after observed a small tumor at the wound,





wound, which he thought was only coagulated blood. He was soon after carried to the hospital, where he informed the surgeon of this swelling at the bending of the elbow, which was now of the size of an hen's egg ; the skin retained its natural colour, nor could any pulsation be felt in it, but two days after it was distinctly seen and felt. Upon a consultation, this tumor was determined to be a true aneurism.

The patient being very weak, it was judged necessary to make a proper compression upon the tumor, till he recovered strength sufficient for to undergo the operation ; the compress at first much lessened the tumor, but it soon again encreased.

Several machines with screws were applied, which only served to inflame the skin, and bring a suppuration on the most prominent part : these were laid aside, and the first sort of compresses used, upon which the tumor returned to its former state. The patient having recruited his strength, and the tumor encreasing very fast, it was judged necessary to perform the operation. (This was the beginning of January). Accordingly I summoned all the surgeons to examine the tumor, and to determine upon the best method of performing the operation ; the tumor was now very large, extending itself three inches along the biceps, and as much below the elbow, and from the cephalic vein to the internal process of the os humeri. Not knowing whether the artery was cut through or dilated, we determined to perform the operation by dissection, and at the same time had every thing ready that was necessary for an amputation : the tourniquet being applied, the skin was pinched up, which I cut through with a bistoury ; and after making a crucial incision the whole extent of the tumor, dissected the integuments from it, the tumor appeared in the upper part to be covered with a cellular membrane, and below with a strong tendinous one, which proved to be the aponeurosis of the biceps muscle : I now began to cut into the lowest part of the aneurism, the coat of which was very thin, and

afterwards opened it its whole length, and discharged a dark-coloured liquor, and some coagulated blood; what remained was in substance like a polypus. Having cleared every thing away, the humeral artery was now plainly seen, and in it a hole capable of receiving the end of a probe, and looked as if it had been made with a punch. Upon loosening the tourniquet, we saw plainly that this was the wounded artery; I immediately passed under it the aneurism needle (armed with thread) both above and below the opening, and made the ligatures as usual, taking care to avoid both the vein and nerve, and afterwards applied the common dressings and bandage. The polypus lump was firm on the side next the skin, though it became softer towards the artery, near to which it was nothing more than coagulated blood; the hand remained cold for half an hour, but soon after recovered its usual heat. The second day it was so much swelled, that I thought proper to take the compress from off the humeral vessels; which being done, and the hand fomented with warm water, the swelling disappeared. The fifth day I took off the dressings, and found the wound began to digest, and the cure went on so happily, that by the end of March he was perfectly well, without any considerable accident intervening. The hand, during the cure, was apt to be œdematosus, which went off upon applying an embrocation of lime water and spirit of wine. No pulse has been felt below the elbow since the operation; the limb continues weak, but he has the use of all the arm below the elbow. He still complains of a numbness and difficulty of motion in the thumb and fore-finger more than in any of the rest, though it is now two months since the wound was skinned over.

An aneurism; by ALEXANDER MONRO, P. A.  
Vol. IV. art. 17.

THE following history confirms the doctrine published in the preceding papers, and proposes likewise some improvements in the operation for the aneurism.

Andrew Rady had the artery of his arm hurt in bleeding, which was followed by an aneurism; a year after, he came into the infirmary, where he underwent the operation.

After the tourniquet was applied, the tumor was opened longitudinally, and a polypous substance and some blood were taken out; I passed a probe into the artery through the aperture, and raised it whilst an armed needle was passed under it. After the superior ligature was made, the tourniquet was loosened, but no blood came through the orifice; but, for security, a ligature was applied also below it, and the wound dressed up in the common manner. The patient's hand soon afterwards swelled and became warm, which shewed the circulation was not stopped. No pulse could be felt for several days, but as soon as the ligatures separated, it was plainly felt on both sides of the wrist. He was soon cured, and enjoyed the strength and motion of his arm as before the accident.

To render this operation more speedy and safe, I would recommend to the operator, after the artery is laid bare, (the elbow being a little bent) to lay hold of it with his finger and thumb, and griping it towards the posterior part, pass the needle close to his nails: by this method he will avoid the nerve, which may be easily distinguished from the artery; and he can, the arm being bent, draw the artery so far as to keep clear of it. Thus this operation, which is described as difficult, tedious, and dangerous, may be performed with ease, expedition, and safety.

*The mechanism of the cartilages between the true vertebræ; by the same. Vol. 5. art. 17.*

THE was shewed here lately a very strange fish; it consisted of two round plates of bone, and a flexible substance, an inch an half thick between them, which joined them together; it was impossible by pressing on the middle of the plates, to force them nearer, but upon pressing them on the side, they might be easily made to approach each other. All these motions seemed to be performed upon a solid substance placed in the center. Such another body was found on the sea-shore, and near to it the vertebræ of a whale. Upon comparing the surfaces of the plates and those of the vertebræ, it was plain that the plates were epiphyses separated from the vertebræ; and the intermediate substance was the cartilage between them. Upon cutting into this ligamentous substance, concentrical fibres shewed themselves, and it became gradually softer, till in the center it was in a liquid form. The motion of these two plates, by help of the ligament and the liquor in the middle, explain the design of the structure of the cartilages of the human vertebræ. The mucous part of this cartilage is placed near the posterior part of the bodies of the vertebræ, and is near the middle between the anterior part of the bodies, and the oblique processes of the vertebræ; so that in an erect posture each bone rests upon a sort of pivot, upon which the body can move easily and quickly to any side, but not too hastily or unequally, for the compressibility of the cartilage gradually increases from the center to the circumference. Without this pivot there would be great danger of injuring the vertebræ, in moving the spine from a reclined to the opposite posture; whereas this contrivance allows a gradual change of the center of motion to each vertebræ, suited to the bearing of the superin-

perincumbent weight, in the different bendings of the spine. This fulcrum also serves to keep off the great pressure which the vessels of this cartilage would suffer when the body is erect; and the absorption of this fluid, increased by the pressure, will account for the difference of one's height at night and morning.

*Reflections and observations on the seminal blood-vessels; by the late Dr. GEORGE MARTIN, physician to the American expedition. Vol. V. art. 18.*

THE anastomoses of the spermatic veins and arteries, which many are so fond of, and which Dr. Boerhaave (a) has asserted in so remarkable a manner, proposing these vessels as having, in this respect, a peculiar structure, different from all other parts of the body; and so introducing a particular sort of secretion no where else to be found, seem repugnant to the simplicity which nature delights in.

2. The doctrine of these anastomoses is so far from being new or singular, that it seems to have been a standing doctrine from the restoration of anatomy in the beginning of the sixteenth, till beyond the middle of the last century. Vesalius (b) talks of the spermatic veins and arteries as meeting and interwoven together in a peculiar way. Falloppio (c) seems to allow something of this same kind in men, but the rest of the anatomists of that age make no distinction, reckoning the same thing to obtain equally in both sexes. And Eustachio (d) in all his figures of the spermatic vessels, whether in men or women, seems to shew pretty large, and visible communicating canals. Realdo Colombo (e) thought the spermatic veins and arteries to be so interwoven in their progress, that the vein entered the artery, and the artery

(a) Inst. Med. § 262, 642. (b) De hum. corp. fabr. V. 13, 15. (c) Obs. anat. op. tom. i. p. 422. & Vesal. oper. 1725, p. 751. (d) Tab. anat. xii. fig. 1, 3. xiii. xxv. (e) De re anat. xi. 13.

the vein ; which he may seem to have borrowed from Nic. Massa (a) ; and so this, or something like it, continued to be the received opinion in the days of De Laurent (b). And so far down as beyond the middle of the last century, one of the greatest of those times, Dominico Marchetti (c), speaking of the spermatic vessels, says, *Arteriæ anastomosin in progressu cum venis patentem faciunt* : so that this seems to have been the prevailing opinion of anatomists, till De Graaf (d) dared positively to deny that there was any such thing as these patent anastomoses ; being however cautious enough to let us understand at the same time, he did not absolutely deny that the ordinary circulation of the blood from the very minute arteries to the beginning veins, might be carried on by their mutual joining or inosculations, as now every body knows from the observations of Malpighi, Leewenhoek, and others.

3. But Leal Lealis being dissatisfied with De Graaf's account of this and several other things, gave a new scheme of these matters (e), in which he keenly defends the existence of the anastomoses betwixt the trunks of the spermatic veins and arteries against De Graaf ; however with this remarkable difference from the preceding authors, that instead of patent communications, he calls them small and almost invisible anastomoses (f), which he openly acknowledges (g) that he asserted, not because he could perceive them with his eyes, but by reason of the close union of the seminary blood-vessels ; and chiefly that the effects of some particular experiments and phænomena, necessarily supposed some such inosculations ; which experiments and phænomena, neither Euftachio nor Colombo, nor any other before Harvey, ever tried or considered in that light ; since Leal's reasoning is entirely

(a) Anat. lib. introd. xix. p. 33. xxiii. p. 40. xvii. p. 31.

(b) Hist. anat. vii. 2. (c) Anatom. 6. p. 58.

(d) De vir. org. &c. p. 24. & epist. ad Sylv.

(e) De part. semen confident. in viro.

(f) De part. semi. conf. p. 20.

(g) Ibid. p. 26.

founded on the circulation of the blood in a living animal.

4. The substance and strength of Leal's arguments for anastomoses end in this (a), that cutting off all communication betwixt the arteries and the testicles in a living animal, yet the blood without great difficulty finds a way to return by the veins. This phænomenon may be explained without acknowledging the existence of the extraordinary anastomoses in question. When all the *vasa præparantia* above the testicles are tied, or the communication between the artery and vein taken away, there is still left a passage, though a very straitned one, by the common course of the circulation, without supposing lateral short openings, namely, by the branches of the *spermatics*, which arise all along in their progress, and are distributed to the neighbouring membranes; which lateral branches Leal did not think of, though described by Galen (b) and others, and are fully expressed by Vesalius (c), both in his text and figures, and now finely pointed out by the inimitable and accurate Eustachio (d). However, this passage of the blood in the lumbar membranes, is not near so free and ample as its direct course through the testicle itself, at least if we can give credit to an experiment of De Graaf (e). He then making a ligature on the lower end of the *corpus pyramidale* in a dead animal, found that a liquor injected into the trunk of the seminal artery, was immediately stopped; for that it seems it could not be pushed through the strait communications on the surrounding membranes into the trunk of the spermatic vein, thro' which the liquor returned plentifully and easily as soon as he took off the ligature, and so allowed it to run by the natural passages and communications in the testicle. By which experiment it is plain, that the osculations of the arteries and veins, in and about the testicle, are more ample than any communication they have all the way downwards.

- (a) *Dè part. sem. conf.* p. 18, 19, 20. (b) *De diseqt. ven.* §.  
 (c) *De hum. corp. fabr.* iii. 9. V. 13. fig. 20, 22, 23, 25.  
 (d) *Tab. anat.* xii. fig. 1, 3. xiii. xxv. (e) *De vir. org.* p. 24.

6. Since then that lateral passage of the blood is so very strait, and since Leal does not pretend ever to have seen the communicating canals of the seminal veins and arteries, is it not surprizing that Boerhaave, in the first edition of his institutions (a), and more fully in the second (b), on Leal's single authority, affirm that arteria spermatica emittit ramulos arteriosos, qui recta, patenti, satisque magna via, in venam comitem cruxrem arteriosum latera ter derivent vera anastomosi, in primis in pyramidali corpore? How can this patens, satisque magna via, be fairly deduced from Leal's invisible anastomoses, or be reconciled with De Graaf's experiment? Which too evinces not only the existence, but the largeness and openness of the veins of the testicle; though Boerhaave (c) denies the body of the testicle any considerable corresponding veins returning to its arteries. If the human testicle is cut open, a beautiful distribution of red vessels, both veins and arteries, may be observed on the inside of the tunica albuginea, every where throwing off very considerable branches into the substance of the testicle; all which are very well described by Vesalius (d), and others (e), and most elegantly delineated by Eustachio (f).

7. The pictures of Eustachio (g), and the opinion of other anatomists, furnish the best argument for the inosculations between the seminal trunks; and Boerhaave adds the tables of Eustachio to his citations from Leal: but these ill-yoked together authorities flow not from the same view of things; the thoughts and design of the first are different from the hypothesis of the latter. Throughout all Leal's dissertation runs an air of negligence of the works of nature, and want of respect for the writings of others; and I can account for the pictures of Eustachio, and other

(a) § 210, 451, 452. (b) § 262, 642. (c) § 644, 647.  
 (d) Hun. corp. fabr. v. 13. fig. 23. Q, R, S, T, U. (e) See Caffer. tab. anat. viii. 13. fig. 5. de Graaf, ib. tab. iii. fig. 5. tab. iv. fig. 2. (f) Tab. anat. xii. fig. 6, 8. (g) Ibid. fig. 1, 3. § 2b. xiii. xxv.

anatomists books exhibiting visible anastomoses, without admitting any such extraordinary fabric in the spermatic vessels, as is no where else to be found in the animal machine. In December last, 1722, I got the body of a very young girl, who was so full of blood, that the coats of almost all the considerable arteries were covered over with a close network of red blood-vessels, and a great many run on several veins, especially the large ones. The right spermatic artery was but small, yet its coat was covered with a vast number of red vessels; so that at its passage into the pelvis, it seemed to be covered over with a thick stratum of small vascular canals, of a red colour. The number of these investing vessels was so very great, that the artery seemed to be smallest at its rise from the aorta, and to be increased in its descent; which Mr. Cowper (a), and Dr. Keil (b), thought to hold universally in the human spermatic arteries. This appearance however in my subject, was owing to the increasing thickness of the sides of the artery, by a distention of a greater number of the compounding vessels, while the real capacity of this artery was so far from being enlarged, that it was rather diminished by sending off such a number of lateral branches to the cellular membrane surrounding it: for this gradual diminution I have observed in the spermatics of some other subjects, according to the common law observed in the arterial system through all the rest of the body. But what is more to our present purpose, I observed at several places considerable branches rising from the seminal vein, and as soon as they reached the trunk of the seminal artery, spread up and down upon its sides, when I found the same appearance on the left side of the body. I compared this observation with one I had made sometime before on the body of a middle-aged woman, whose right seminal artery was pretty large, and from which

(a) Anat. hum. corp. introd. & expl. tab. xlvi. & tab. xlv. fig. 2. & phil. trans. abr. v. i. p. 379. (b) Anat. ii. 10, 15. ep. iv. p. 150.

I observed in one place a branch arising, and, just as it reached the vein, dividing itself into two twigs, which, the one going upward and the other downward, were spread on its sides; just as in the other subject I observed the branches of the vein distributed on the artery.

9. These short lateral branches of the spermatics rising from the cavity of the one vessel, and distributed chiefly on the coats of the other one, have not hitherto been sufficiently attended to by anatomists, tho' it may have been an imperfect view of them which led the ancients into the notion of visible anastomoses: if I had not, with more than ordinary care, traced the continuation of their colour and distribution, I should have thought them patent inosculations.

10. Eustachio's figures may be so explained as to agree with my observations. In tab. xii. fig. 1. on the right side, we see three of these pretended anastomoses, whereof the first, going from the internal seminal trunk to the external, is an arterious canal, going to be distributed on the trunk of the spermatic vein, from which the two lower lateral communications are derived to the coats of the artery. The only one painted on the left side, is a branch of the artery distributed on the surface of the vein. And again in fig. 3. on the right side, is, first, one of these communicating canals taking its rise from the artery, and thence carried obliquely downward to the vein; and a little lower another, with a contrary course, going from the vein to the artery; and then, after the same manner, in the following xiiiith table, exhibiting the female organs, there are on the right side, first, two of these short lateral branches coming from the vein to the artery, from the substance of which the blood is carried by these communications to the cavity of the venal trunk; and somewhat lower, a small branch springs from the artery to supply the coats of the vein with blood. In tab. xxv. the parts are so small, and some of them of necessity, to make them

them visible, so disproportioned, that we need not, on this occasion, mention any thing which might be deduced from it, for there the longitudinal dimensions of the body are but one sixth of what they are in nature, reckoning at the mean standard ; and the fore-cited figures of tab. xii. are but one third of nature ; while tab. xiii. is designed to show the parts not much less in length (perhaps about one fifth or so) than they really are in a maid of an ordinary stature : so that in it the seminal blood-vessels are represented larger and nearer to their true dimensions than any where else ; by which means there is here delineated not only the natural course of the communicating canals, as in all the rest, but a resemblance, or shadow at least, of something of more subtlety and elegance ; and that is the mouths of them, where they open into their proper trunks wider and fuller than at the other end, where they are to be distributed on the corresponding vessels ; which wide openings of branches into their respective trunks, is very frequent in the vascular system, and whereof there are several examples in the figure before us.

11. From all which is there not some ground to imagine, that even these communicating canals in Eustachio's pictures, are not perhaps designed by the author as anastomoses, but only as little branches arising from the cavity of the one trunk, and distributed on the coats of the other ? In the mean time, whatever be in this conjecture, I am sure some, from an unreasonable fondness and wild admiration of the ancients, ascribe as difficult things to him and other old authors, and that with a much less air of probability. It is sufficient for my purpose to have shown that the account which I have given is confirmed by such a great author, in as far as he, who studied and delineated the true figure and position of the parts so well, and so agreeably to nature, has painted them in much the same position they appeared to me.

12. And so after considering the whole course of the spermatic vessels, we find no other communications

tions or anastomoses betwixt them, than what are every where else in all the parts and viscera of an animal, where the arteries, after a vast many ramifications, turn exceeding small; and at length, changing their direction, become venous, or returning canals; and these in their progress joining together after the ordinary manner, form the conspicuous and commonly described veins.

*Remarks on the spermatic vessels and scrotum, with its contents; by ALEXANDER MONRO, P. A.*  
Vol. V. art. 19.

1. IN the greater number of human bodies, the spermatic artery of each side rises from the anterior part of the aorta, between the emulgent and inferior mesenteric arteries, as they are painted by Eustachius (a); and having each its course obliquely downwards and outwards, becomes contiguous to its vein, a knotty membranous substance connecting them here more firmly together, than any where else in their progress. The artery descending sends numerous small branches off to the cellular substance it is lodged in, and near to the ovary in women, or some way above the testis in men, divides into two branches, as painted by Swammerdam (b) and de Graaf (c). The larger branch in men is bestowed on the testis, through the substance of which its numerous branches are dispersed every where, as may be evidently seen after a good injection. The lesser branch of the spermatic artery in men, is principally lost in the epididymis, tho' I have frequently traced its very small branches dispers'd also on the testicle. The larger branch of the spermatic artery in women, is sent to the ovary, and to anastomose with the other uterine arteries. The lesser one is distributed to the tuba fallopliana and ligamentum latum. 2. Numerous veins coming out of the testis and ova-

(a) Tab. 12, 13. (b) Miracul. natur. tab. 1, 2, 3.  
(c) De organ. generat. tab. 1, 2, 12.

rium, unite and separate so often, in their ascent to be collected with the many branches they receive from the parts which they run near to, into one large vein, as to deserve the name of corpus varicosum, or pampiniforme. The single vein into which these numerous vessels unite, empties itself into the vena cava, immediately below the emulgent on the right side, and into the emulgent vein on the left side. 3. Where the artery and vein are contiguous, the venous branches cross over and twist round the artery so, that at first view one would be apt to think that they united in one canal, or opened by a large anastomosis into each other; but by dissecting carefully, after an injection, one sees plainly there is no such anastomosis. 4. These vessels, while in the abdomen, are on the outside of the peritoneum in their whole course, lying in a cellular substance, over the anterior part of which the peritoneum is stretched. 5. Tho' the rise and course of the spermatic arteries are commonly as just now described, yet there is a variety to be observed here. In some bodies I have seen both spermatics rise from the aorta higher or lower than the ordinary place; in others from the emulgents, or from the arteries of the glandulæ renales; three bodies are all in which I found this origin of the spermatic arteries from the arteries of these glands. 6. Instead of one spermatic artery of each side, I have seen several times two in one or both sides, which had their origins in the uncertain way I mentioned the single artery to have. 7. When there has been one artery of a side, rising from the ordinary part of the aorta, I have seen it in one or both sides make an arch upward, before it turned down to the ordinary course. In a woman, the spermatic artery of the left side ascended from the aorta, and passed between the emulgent vein and artery, making a curve to come at the anterior part of the vein, over which it descended to go to the ordinary course. 8. I have more frequently met with these deviations from the ordinary structure in the left than in the right side. 9. Notwithstanding the difference

ference of the origin or course of the extraordinary arteries, the single arteries become contiguous to the vein near to the middle of the anterior process of the psoas muscle, and afterwards divide into two branches, distributed in the manner in which those of the spermatic artery are; and where there are two arteries on the same side, they approach the vein in the usual place, the lesser one serving the epididymis, or tuba Fallopiana, and the larger one being distributed to the testis or ovary.

10. The spermatic vessels of men, passing out of the abdomen, insinuate themselves between muscular fibres, which may be said either to be part of the transverse, or of the internal oblique muscle, or of both. The course of the fibres of the two muscles is much the same here, and the connexion of the fibres to each other so loose, as to allow us to separate them as we please, by either leaving them with the transverse muscle, or raising them with the oblique, or giving a share of them to each muscle.

11. The spermatic vessels and vas deferens, in going through between the fibres now described, which form a passage easily dilated, carry part of the cellular membrane, in which they lay behind the peritonæum, along with them, and acquire more from the cellular membranes of the muscular fibres.

12. Besides the muscular fibres between which the spermatics pass, there are others which, instead of continuing their course transversely from the os ilium to the linea alba, fall obliquely down on the outside of the cellular substance involving the vessels, and go out with them at the oval tendinous ring of the external oblique muscle, which is composed of firm interlaced fibres, and is not easily dilated.

13. In the passage between the muscles and through the ring, the spermatic cord obtains more cellular substance, and soon descends in the tunica cellularis to the scrotum.

14. Frequently a slip of muscular fibres is sent off from the external oblique muscle of the abdomen, to join those which passed through the tendinous ring of this muscle, to assist in

in forming the cremaster muscle of the testis, which lying at first on the outside of the spermatic cord, gradually, as it descends into the scrotum, expands its fibres round the cord over the cellular substance, and at last is spread on the vaginal coat of the testicle, to which it adheres firmly. 15. The cellular membranes on the inside of this muscle, where it covers the spermatic cord, lose their cellular appearance when cut. The membranous appearance however which the cells within the cremaster muscle have, when collapsed or stretched longitudinally, is what continues the opinion of there being a vaginal coat to the human spermatic cord, which was supposed for a long time to be a process or sheath, sent down from the peritonæum in the human body, as well as it is in quadrupeds which were then generally dissected; but the difference is very considerable; for in men the spermatic vessels lie entirely behind the peritonæum, and there is not any perforation or production from this membrane at the place where the vessels are passing between the fibres of the abdominal muscles; whereas in many quadrupeds there is a production of the peritonæum, which covers the spermatic vessels, but allows them to lie loose in the abdomen, analogous to what we see the mesentery does to the intestines; and when these pendulous vessels are joined by their pendulous vas deferens, they enter the orifice of a tube formed by the peritonæum at the aperture of the abdominal muscles. This tube formed of the peritonæum, is continued down to the bottom of the scrotum, and contains the spermatic cord and testicle, which are only connected to it at the posterior part, where its membrane advances to furnish them their more immediate covering, which serves to keep them in a right situation, and to strengthen and protect them. 16. In our erect posture where the moisture of the abdomen falls down to the lower part of its cavity, and where the bowels are always pressing with considerable force at the passage in the muscles, such a tube continued from the abdomen, would have per-

petually collected liquor in it, and made us much more subject to herniæ, of which there is less danger in quadrupeds, in whom this orifice of the tube is at the highest part of their bellies; but because in forcible contractions of their abdominal muscles, the viscera might be pushed out at this orifice, a moveable fat flap is placed at the lower part of the orifice, which the bowels pressed upwards must carry before them to cover the passage, to prevent their getting out, and at the same time to defend the spermatic vessels from the pressure of the bowels; which pressure our erect posture much exposes us to, and therefore we stand greatly in need of, and are provided with a tense peritonæum, to defend our spermatic vessels from it, notwithstanding which, the spermatic veins often become varicous, when the belly is much stretched.

17. It may be worth while to remark here, that nature seems to attempt a contrivance to prevent herniæ in men, a-kin to the fat flap in brutes; when ever men are brought by diseases into the hazard of herniæ, from the orifice of a tube produced from the belly. After the reduction of herniæ, a fat substance has grown out from the peritonæum, at the rings of the abdominal muscles, which prevented a relapse (a).

18. Some have thought that the membranous bag, described and painted by Schrader (b) and Bidloo (c), from a preparation of Swammerdam's, coming out from the peritonæum along with the spermatic vessels, is a proof of the natural production of the peritonæum here; but as no such bag is ordinarily to be seen, and we know nothing of the circumstances of the person to whom this preparation belonged, while those who have dissected several people who had long wore trusses for herniæ tell us, they found the remains of the sacs of the herniæ of the form which Schrader describes (d); it is reasonable to think

(a) *Pare livre 18. chap. 15.*(c) *Anat. tab. xxxii. fig. 3, and 4.*  
*Réflexions sur chirurg. l'observ. 58.*(b) *Observ. Dec. 2. obs. 5.*(d) *Le Dran. observ. & re-*

Swammerdam's preparation was no other than such a morbid sac. 19. In place of one membranous vaginal coat from the peritonæum, some authors (a) have described three firm membranes investing the spermatic cord, which they say are aponeuroses from the muscles, thro' which the cord passes: but as these were only found in the dissection of unreduced herniæ, this appearance might be the effect of the morbid state of the parts by the thickning of stretched cellular membranes, though there are no such membranes to be seen in a sound state. 20. The real structure of the human spermatic cord is, that the spermatic vessels and vas deferens carry along with them cellular membranes from the out-side of the peritonæum, and acquire more as they descend, which are at first covered only on the external side by the cremaster muscle, and then are surrounded by it, till they come down as far as the superior part of the testicle, when the cellular membranes terminate, and the thin fibres of the muscles are spread on the vaginal coat of the testicle; as is to be seen after putting a blow-pipe into the upper part of the spermatic cord, and blowing air into the cellular substance. Rau (b) has given us a pretty good picture of this. 21. The spermatic vessels at the epidydimis pass between two contiguous membranes, which may be separated; and if we continue the dissection of these membranes from each side of the testicle, we bring off a large membranous bag, the part of which that invests and adheres to the testicle goes by the name of the tunica albuginea or propria testis, while the other part, being reflected down from the epidydimis, forms the loose vaginal coat, and the part of it which covers the epidydimis, and descends from that to where the cremaster muscle begins to be firmly fixed to it, is called by some late writers the septum or partition between the spermatic cord and testicle, which may be considerably enlarged and thickened by diseases, and the addition

(a) Du Blegny zodiac. medico-gallic. ann. i. mens. febr. obs. 1. Memoires de l'acad de sciences, 1701.

(b) Respons. ad Ruysh. tab. ii. fig. 2.

of strait cellular membranes adhering to the superior part of it. In the same manner as is here proposed for bringing away the vaginal with the proper coat of the testicle in an empty bag, the membrane of the heart with the pericardium, or the pleura with the membrane of the lungs, or the peritonæum with the mesentery expanded over the intestines, and with the membranes of the other viscera over which it is spread, may also be taken out in so many empty bags ; and therefore in the strict way of speaking, none of these bowels can be said to be contained within the membranes which are commonly said to invest them.

22. Besides the artery which is named spermatic, there are two others which commonly are sent to each testicle ; one is a branch of the artery which furnishes the vesicula seminalis and prostata with blood, which runs upon the vas deferens as far as the epididymis ; and sometimes I have traced its ramifications on the testicle after a good injection. De Graaf (a) represents some part of this artery. The other artery is sometimes sent down through the rings of the muscles from the epigastric ; in other subjects it comes out below the duplicated tendon of the external oblique muscle, and after giving branches to the scrotum, enters the cellular substance of the spermatic cord, to go to the epididymis and testicle. Winslow (b) has mentioned this artery. 23. Some branches of veins coming away from the corpus pampiniforme being joined with others from the scrotum, form a vein which accompanies the artery last described, and empties itself into the external iliac vein, near to the ring of the external oblique muscle, it is generally considerably enlarged by the veins returning the blood from the teguments of the lower part of the abdomen.

24. The oblong testicles are situated obliquely, so that their convex longest surface is anterior and inferior, while the epididymis fixed to the other side is superior and posterior ; their extremity where the thicker part,

(a) *De viror. organ. tab. vi. fig. 1. H.*  
exires, § 237.

(b) *Exposition des*

or beginning of the epididymis is, being exterior and superior, and the vas deferens going out from the inferior posterior extremity. 25. The membrane connecting the epididymis to the testicle, sinks into the root of the epididymis at the anterior part, and so leaves there a furrow between the testicle and epididymis; whereas on the posterior part the surface is smooth. By means however of the depression on the anterior part, the membranes of the two sides come very near each other, admitting the vessels only between them, which therefore run to the testicle at the posterior side of the epididymis (a). 26. The fibres of which principally the testicle is composed, easily separate from each other, and a single thread can be drawn out to a great length. These are probably vessels, but I could never make a coloured liquor enter them. 27. The pellucid firmer fibres which run through the middle of the testicle, from the convex side towards the epididymis, dividing it in some measure into equal portions (b), which are commonly esteemed excretory ducts, I believe to be blood-vessels, having forced a coloured liquor into several of them, by injecting the spermatic artery. 28. The membranous substance under the epididymis (c), called Highmore's duct, has no visible cavity, which should be evident if it was the common pipe for receiving the liquor from so many excretaries as are said to open into it. It appears to be no more than the firm membranes connecting the testicle and epididymis together. 29. It has been doubted whether the vas deferens and epididymis are continued tubes or not. To be satisfied in this, cut the vas deferens through where it lies on the inside of the vesicula seminalis, and take it and the testicle away from the body; press the epididymis from its larger towards its smaller extremity, and from that to the cut end of the vas deferens, till you have squeezed out all the liquor you can, taking

(a) See De Graaf's, tab. i, ii. (b) Ibid. tab. iv. fig. 4.  
 (c) Highmore disquisit. anat. tab. xi. fig. 1. lit. g. g. De Graaf,  
 tab. iv. fig. 4.

care, by squeezing with moist fingers, not to let these parts dry too much in doing this; then put a long pipe into the vas deferens, and through it pour quicksilver, the weight of a high column of mercury, assisted by your fingers pressing from time to time towards the testicle, will make the quicksilver go forward in the tortuous canal about half the body of the epididymis, beyond which I never could make it pass, being, I suppose, stopp'd there by the liquor, of which the canals were full. By this preparation one sees clearly the tubular texture of the vas deferens, and the wonderful convolutions of it, where it has the name of epididymis.

30. When the spermatic cords pass the rings of the external oblique abdominal muscles, they are lodged in the common tunica adiposa, till they enter the scrotum, where no fat is to be seen, but the cords and testicles involved in their vaginal coats, are immersed into a cellular substance, the cells of which all communicate with each other. What has been shewed as a septum scroti, is the effect of a faulty preparation, and is no more than the collapsed cells all glued together in the drying, and such as can be made in any part of the common tunica cellularis under the skin of lean people, where there is no fat. The way to have a right notion of the structure of the parts here, is to distend the cellular substance of the scrotum with air, while the scrotum is entire, and the testicles are in their natural place, and then to dry them; or rather to cut the skin all along the middle of the scrotum of a recent subject, and then to draw the skin gently to each side, cutting gradually what we have viewed sufficiently, and bringing the sides of the incision nearer together from time to time; then we shall be sensible that the testicles are connected by cellular membranes, which are capable of being stretched to a very great extent, and, when collapsed, go into a very small space; and that the testicles are every where in such a substance.

31. What should prevent the vessels of these cells from separating an oily liquor into them, as is done generally into the

tunica cellularis elsewhere, I don't know; but the want of fat here saves us the trouble we might have from the stretching of the skin and spermatic cord by its weight; and we are not so much exposed to bruises and other hurtful accidents, as if the scrotum was larger by the addition of fat. 32. The cellular substance under the skin, when it has no fat in it, puts on a muscular appearance, and wrinkles the skin: it does the same here in the scrotum; and these collapsed membranes entirely compose what is so formally described as a muscle under the name of dartos. 33. The cellular membranes at the upper part of the scrotum, are firmer than lower down; and the difference becomes much more remarkable when they are stretched by any disease. This depends on their being connected to the top of the thigh on one side, and to the os pubis on the other, and some addition which seems to be made to them of fibres from the tendinous aponeurosis of the fascia lata, and from the suspensory ligament of the penis. 34. The skin and cuticula of the scrotum are of the same structure as elsewhere; the little wrinkle called raphe, is no more than the skin stretched a little less in the interstices of the testicles than in other parts, and therefore making a larger wrinkle; for whenever water or air, introduced into the cellular substance, distends the scrotum equally, the raphe disappears. 35. The principal artery of the scrotum on each side is what comes from the crural artery, and crossing over the anterior part of the spermatic cord, spreads its branches every where in the scrotum, and a large branch or two is given to the skin of the penis. Other smaller ones it has, which come down from the epigastric and pudenda; and I have seen others rise up to it from the branch of the hypogastric, which serves the perinæum. 36. Its principal vein accompanies the larger artery, or frequently is a little higher up.

Remarks on inguinal herniæ in men; by the same. Vol. V. art. 20.

THE viscera of the abdomen cannot fall down through the rings of the muscles to form a true hernia in the groin or scrotum, without the tense peritonæum covering those rings (§ 16.) is either broken or stretched: the latter is what many operations and dissections have proved to be almost constantly the case. The situation of the spermatic vessels (§ 4.) shews that in herniæ the sac of the peritonæum, with the included viscera, must be always placed at the anterior part of the spermatic vessels; and the description of the cremaster muscle (§ 14.) may teach us, that in descending towards the scrotum, the sac may either enter within the cremaster, or pass over it, the cellular membranes of the cord in the former case, and of the scrotum in the latter, yielding to the force, pushing the viscera down. When the sac descends within the cremaster muscle, the tumor will be more perpendicular, oblong, and tense. The septum (§ 21.) will hinder its descent to the testicle, which (§ 24.) will be felt at the side of the tumor; and if the sac is pushed so violently upon the septum, as to stretch it, a rising ring will be formed round the sides of the testicle, and the epididymis be concealed. If the sac falls without the cremaster, it will descend towards the interior side of the cord; its form will be rounder, and the sac will not be so tense as in the former case; it may go down as far as the testicle, which, with the epididymis, will be felt on its external part. If the herniæ is very large, the sac may be so distended, as almost to surround the testicle. The effects of a hernia on the different parts forming the tumor, will be these: the skin will have all its vessels, particularly the veins, considerably distended, because of the situation of the principal vein (§ 36.). This distension of the vessels must be proportional to the pressure, and the time it has continued; the cellular membranes

membranes increase their thickness and firmness : those of them which are annexed to firm parts, will suffer most in this way from the pressure, so that sometimes a cross band is seen at the superior part of the scrotum, (§ 33.) in hazard of strangulating the hernia, or several membranous lamellæ, which appear to be aponeuroses from the abdominal muscles (§ 19.). The enlarged vessels of the cellular membrane will pour out liquors into the cells which are not violently stretched ; hence the scrotum becomes frequently thick in herniæ, and more hard as the liquor is more viscid. The peritonæum will not only have the sac affected in the way the parts hitherto described are, but where it is stretched within the belly, it may be drawn into unequal wrinkles, which will thicken, and may grow together. The vessels of this depending sac will pour out their liquors in greater quantity ; and if the abdominal liquor is collected in drops, they will drill down into the bag ; on which account we meet so frequently with a liquor contained in the hernial sac. When this liquor is mild, it is the best preservative against the concretion of the sac and its contained viscera ; if it becomes acrid, it will stimulate and erode the parts. The viscera in the sac must draw those they are connected to within the belly, which may make these parts also suffer. Those in the hernia being straitened in the preternatural sac, especially where the membranes are supported by firm parts, their vessels will be pressed, and the returning liquors being easily stopped in their course, all the vessels below this straitened part will be stretched. All the hollow viscera having some fluid or other substance contained in them, and being often engaged in herniæ, their contents may be retained and collected in this depending part, by which the viscera are distended, and the vessels more stretched, the tension may be augmented by the rarefaction of the contents from the heat of the body, so as to occasion a fever, from which all the disorders may be increased, till the obstruction becoming compleat, all the parts mortify.

If the effort of nature prevail, and the obstruction be removed by the fever, it must be either in the way of suppuration or resolution. In the resolution, the inflamed viscera and their bag, being pressed close, are liable to grow together, and they always acquire an addition of substance, so that they are thicker and firmer afterwards. In the suppuration, besides the danger of concretion, the pus may become acrid, and eroding the parts it touches, be taken into the vessels and create various disorders. When the parts become too bulky to be returned by the passage they came out at, or there is a concretion of them in the neighbouring parts, they must remain in this state till the obstacle is removed ; but if they can be returned, and the passage secured, a relapse may be prevented. The sac has little contractile power to make it shrivel itself up into the belly, and is so thin, that an artificial pressure cannot be well applied to it, and besides, is contiguous to stretched membranes which may grow to it : for these reasons the bowels often return into the belly when the sac is left behind ; and being pressed at its upper part by the substance blocking up the passage thro' the muscles, is made narrow there, or its sides may grow together, while the lower part of it may be filled with water from the abdomen, or from its own vessels (a). If this does not happen, it shrivels and diminishes. See § 18. When the viscera are straitened in their passage to the hernia, the spermatic vessels which are placed behind the sac, suffer more or less ; and hence a varicous corpus pampiniforme, thickened spermatic cord from the repletion of its cells with liquors, water collected within the tunica vaginalis of the testicle, swelling of the testicle itself, inflammation of all these parts, and its consequences. Tho' the bowels forming an hernia, are generally included in a sac made by the protruded peritonæum, yet the peritonæum may be torn by a violent effort causing a hernia (b) ; or tho' the peritonæum de-

(a) Savierd observ. 22. Le Dran observ. 75. (b) Garengéot de operat. c. 53. Scended

scended at first, it may be burst by some external violence (a), it may be eroded by pus, or fall away by gangrene (b). Allowance being made for want of the sac, the effects of this rare kind of hernia may be easily understood by what was said of the other. There are some specialities which attend the several viscera engaged in this sort of tumor, which had need to be attended to. The intestines and omentum are the parts which fall most frequently down, the appearances and consequences of which are well enough described in several books. When instead of an entire piece of intestine, which commonly is the case, the side only has been stretched out at the rings of the abdominal muscles, the ingesta will not be stopp'd, and the patient will go to stool even tho' a strangulation of the hernia should come on ; whereas when the whole diameter of the gut is straitened by a strangulation, the ingesta will be stopp'd at the hernia, and regurgitating, be thrown up by vomit. The bladder has sometimes fell down in a hernia (c). This is discovered by the fluctuation of a liquor which may be pressed into the body, and so occasion a desire to make water, or run out by the common urinary passage. Women have had the uterus thrust through the rings of the muscles to form a hernia (d). If the progress and symptoms of any tumor in the groin and scrotum are accurately examined, there will be seldom any danger of mistaking another disease for a hernia, or of judging a hernia to be some other disease. One of the cases most liable to occasion a mistake, is a testicle lodged either naturally at the ring of the abdominal muscle (e), without having been observed till some accident made it swell and grow painful, or a testicle retracted thither by inflammation or contusion (f). No testicle being found

(a) Garengot de operat. c. 5. Mery mem. de l'acad. des sciences, 1701. (b) Saviard. observ. 56. (c) Ruysch obs. 98. Mery mem. de l'acad. 1713. (d) Michael Doring de hernia uterina epistola. (e) Paré liv. 8. chap. 18. Jac. Oeth. lib. obs. propr. Act. Hafn. vol. 1. obs. 156. (f) Boquet. sepulchr. anat. lib. 3. sect. 30. obs. 3.

when sought for in the scrotum, the figure and greater hardness of the knot in the groin, and the absence of the most common symptoms of a hernia, distinguish this case. Herniæ should be reduced as soon as possible : for this purpose, such a posture of the body as makes the viscera press least on the rings of the abdominal muscles, and relaxes the skin and muscles most, is of great advantage ; such is lying on the back, with the hips and shoulders raised higher than the loins, and the thighs bended forwards, without using any effort of the muscles. While the patient lies thus, the surgeon gently pushes the viscera up with his fingers, alternately applied to a small part of them at once. If this attempt does not succeed, plentiful bleeding, emollient clysters, fomentations and pultices are ordered. As all these are calculated for the inflamed state of herniæ, they do very ill who prescribe no other medicine ; for tho' herniæ, especially recent ones, which will not reduce, are liable to inflame and strangulate, yet an over care to prevent this danger ought not to retard the reduction, since it is the most effectual preservative against all the bad symptoms. The directions mentioned above are in this respect faulty ; if, for example, the obstacle to reduction is rarified air within the guts distending them, would not the warm relaxing foluses and cataplasms encrease the distention ? I have seen cold claret or snow make the distended intestines return into the belly, after the antiphlogistics, as they are called, had increased the swelling, and the common efforts of reduction had failed. In the same way, when the tone of the guts is too weak for pushing the ingesta forwards towards the anus, whereby they come to be collected in the hernia, and make the intestine too bulky for passing the ring of the abdominal muscles, bleeding, and relaxing medicines will awaken the guts more ; a brisk stimulus given by the mouth or anus, will much more effectually make a cure. I have many times reduced a rupture by jalap root and sweet mercury, when neither hands nor emollients

emollients were of service. Will not the flabby omentum, if it is lodged in the hernia be more relaxed, and swell more by the application of emollients? The circumstances of this disease therefore are to be examined with care, and the method of cure varied according to the nature of the obstacle to reduction, whether it is air, fæces, increased growth of parts, or overstretched inflamed vessels, which last case only admits the use of medicines prescribed as proper in all cases, and even in this caution is necessary in making use of them. If a person is old and weak, the loss of too much blood may make the liquors stagnate, and bring on a mortification. If the patient is of a lax constitution, bleeding to excess, and the application of emollients, may weaken the vessels so as to make them continue in their distended state. If the methods hitherto proposed fail, and the symptoms of strangulation come on, there is a necessity of performing the operation for the bunocele, or compleat hernia; the rules for which laid down by late writers, are well enough accommodated to most of the ordinary circumstances of herniæ; therefore I shall only make some remarks on parts of the operation where there is doubt what ought to be done, and on some of the more uncommon cases. When the viscera are not confined within a sac, great care is to be taken in the incision, lest the bowels should be wounded. When the sac is laid bare, if the disease is recent, the sac thin, and not folded into wrinkles, or straitned in the passages, or grown to any other part; if the bowels are sound, and in no danger of gangrene, or are not grown to the sac; if the liquor in the sac is limpid, and no fætor or erosion is observed, the reduction of the sac entire will be of service to block up the passage, and to prevent the viscera from being exposed to the external air. Where these circumstances don't meet, the sac ought to be opened; the wrinkled or contracted sac may continue the strangulation after the ring of the muscle has been

cut.

cut (a), the sac or bowels fixed by concretion, will not be reduced, an opened gut will let out the ingesta, and a mortified omentum will slough off into the abdomen, and stagnating there, corrupt more, and do great mischief. The same effect may be expected from the liquor in the sac, if already acrid. If there is a considerable concretion of the bowels to the sac, and this is grown to the scrotum, the surgeon had better leave the bowels unreduced, after cutting the strangulating ring, than risk the life of his patient by a dissection of the concreted parts, especially if the guts and bladder are the parts grown to the sac; for when the strangulation is removed, the viscera may possibly shrivel up, or if they continue down, a cicatrice may be brought over them. When in such a state of the bowels, the strangulation depends on some piece of a gut lately fallen down, this should be reduced while the other part of the bowels are left down (b). There are several instances of people surviving after the gut is mortified, with either an artificial anus at the ring (c), or nature has reunited the distant pieces (d), or she has been assisted by art to join them (e). The method of stitching the parts of the mesentery belonging to the two ends of the divided gut, seems preferable to stitching the gut itself; for this irritates more, and the threads of the stitch will not come away so easily, and more readily leave an opening in the gut. Tho' nothing appears when the sac is opened except the omentum, the surgeon ought to examine carefully, whether any of the intestine is wrapt up within the caul, that they may be disengaged from each other, lest the gut be cut or tied, if there is occasion to perform any such operation on the omentum. If the omentum is not absolutely mortified, it should have the chance of recovering by

(a) Le Dran. observ. 53. (b) Morandin de la Faye's notes sur Dionis, p. 55. (c) Mery mem. de l'acad. 1701. Cheselden's anatomy, p. m. 69. Le Dran obs. 60. (d) Courtial. obs. 6. Med. essays, vol. 1. art. 20. (e) De la Peyronie mercure de France Juillet, 1732. Ramdahrius commerc. Norimberg. 1731. Spec. 26.

being reduced, since at worst no more inconvenience will happen from the separation of what nature mortifies, than what the ligature, which must be made on the present supposition, occasions. Ought the omentum to be tied before the mortified part is cut off? By the ligature more of it is destroyed, and by the thread the omentum is drawn into a knot, which may do hurt. Supposing the mortified part to be cut off as near to the sound part as the thread in a ligature is put, would the cut vessels in the remaining mortified part bleed? or would the gangrene more readily spread without a ligature than with it? After the sac is emptied by the reduction of the bowels, a membranous substance will sometimes appear resembling a piece of gut (a), which is no more than a folding of the sac, and ought to be let alone. After the bowels are reduced in appearance, the surgeon ought to search with his finger, lest there be any contracted ringlet, cross bars, or productions of the peritonæum above the ring in the muscle, which might continue the strangulation of the gut, that they may be cut to make the gut quite free (b). Such rings are most readily to be met with in people who have long wore trusses. When the intestine is opened, or there is gangrene or inflammation on it, that may give reason to expect it will be opened, when the suppuration comes on after the reduction of a hernia; or if it is expected that any part of the omentum will separate, the peritonæum and ring of the muscle ought to be kept open, to allow the matter to be evacuated. But when there is no reason to expect the effusion of any such putrid substance into the abdomen, the sooner it is shut up, the better. If we could raise up the hernial sac from the spermatic cord with little trouble, and then put a ligature round it close by the ring of the muscle, it would shut up the passage most effectually during the cure, and might be a means of security against a relapse. It may be said in general that the antiphlogistic regimen

(a) Mery mein. de l'acad. 1701.

(b) Le Dran obs. 58.

is to be observed after this operation ; but regard is to be had to the constitution of the patient and circumstances of the disease. When the gut has been opened or divided, the patient needs to guard against too full meals for a considerable time after, or for all his life, if the gut has been divided, to prevent the bad effects which the pressure of a large quantity of food stopping at this part of the gut, which is generally straitned, might produce. After the viscera of a hernia have been reduced, the passage in the abdominal muscles, by which they escaped, must be straitned, or blocked up to prevent a relapse. While this is doing, the viscera must be hindered from coming out by the patient lying on his back with his hips a little raised, and by a proper bandage. The dilated parts have sometimes been so strengthened by the application of astringent medicines, as to keep the bowels up (a). By pressure continued long, the sides of the peritonæum have been made to grow together (b) ; but unless the ring of the muscle makes a considerable resistance, the peritonæum thus soldered will not do it. If the passage is kept a long time from being dilated, the sides of it gradually contract themselves, and becoming firmer, hinder the falling down of the bowels : for this purpose different bandages have been contrived. The spica bandage, with proper compresses, is used where there is wound or ulcer, because it can be easily cleaned ; but to people who are to wear the bandage long, and to move, the spica is inconvenient ; wherefore to such a compound bandage is applied. The bolsters of most compound bandages or trusses are too soft ; they allow the viscera to come out when the patient makes any strong effort, which pushes the bowels upon the bolster ; they should be very hard stuffed, or made of cork, or some such substance, with leather stretched over it. The shape of these bolsters too is generally faulty ; they ought to be made with such a sudden failure of the convexity, that they may sit close to the hollow immediately above

(a) Med.-Ecl. vol. i. art. 28.

(b) Le Dran. obs. 75.

the os pubis. Such a bolster is represented in plate X. fig. 8. The compound bandages for children, without any firm substance on the outer surface of the bolster, have little pressure on the rings, as commonly applied with the belt sewed to each side of the bolster ; whereas if the circular belt was brought cross over their external surface, and a little lower down than usual, the full effect of the pressure might be had on the rings of the muscle. If a bandage which prevents the falling out of the bowels, is applied several years to children, the peritonæum and ring may become so firm, and the viscera so large, that the rupture may not afterwards return ; but if the viscera come out sometimes, especially in adults, there is always danger of a relapse. I have observed, that most of those who wore a bandage for this disease when children, suffered a relapse, if they laid aside the bandage when they grew up. Several operations have been practised for blocking up the passage by which the bowels fall out after they had been reduced, but were laid aside after trusses came to be tolerably made. Cauterizing lost its reputation last, tho' this operation seems capable of being performed safely, and with some advantage. What might be reasonably proposed by this method is, after reducing the hernia, to destroy the skin and fat covering the ring of the external oblique abdominal muscle, and to make new flesh rise round the spermatic cord in the ring itself. By this new flesh the ring may be blocked up, and by bringing a firm cicatrice over the ring, a sort of bolster might be formed for resisting the viscera. These ends may be answered by pinching up the teguments which lie over the ring, and then making a longitudinal incision some inches in length, the middle of which ought to be over the ring, the depth of it such as to bring the spermatic cord in view ; then by the lunar caustic, small quantities of the common caustic, or other exharotics rightly applied, destroy the fat cellular membranes in the ring and under the skin ; after which hasten a cicatrice by the application of ar-

dent spirits, or tinctures made with them ; and by this endeavour to make the cicatrice adhere to the tendon in the way cicatrices generally do to bones, part of which has cast off, where there has been any ulcer of long standing near them. By lying abed to prevent the viscera coming out during the time of the cure, which allows the ring of the muscle to contract, and by the cicatrice, I have seen patients walk afterwards without the bowels falling out, tho' they wore no bandage ; but this cure is not to be depended on ; for tho' the new flesh which sprouts out from cellular substance suppurating, appears at first firm, yet it afterwards becomes as meer cellular membranés as any where else, and therefore yields to the viscera, pushing it with violence, as it did in a boy whom I saw very carefully treated in this way. This method does no more than make the persons who undergo it, less exposed to the falling out of the viscera, if their bandage should at any time shuffle, or be born up off the rings. The last method I shall mention for blocking up the rings, is by the operation of the bubonocèle, concerning which I made some remarks already. This has generally been thought to prove an absolute cure ; but for the reasons given against the cautery proving such a cure, I join with Mr. de la Faye (a) in opinion, that it is the safest course to wear a bandage likewise after this grand operation.

*Of the tumors in the scrotum commonly called  
false herniæ; by the same. Vol. V. art. 21.*

**F**ALESE herniæ are tumors in the scrotum, occasioned by any other cause than the falling down of the viscera into it ; these begin below and rise upwards, whereas the true herniæ begin above and descend afterwards. These false herniæ are of different natures, and contain different substances, and are distinguished into several classes, of some of

(a) Notes sur Dionis, p. 61.

which again there are different species, according to the particular seat or nature of the tumor.

### Of the HYDROCELE.

When water forms a tumor within the scrotum, the disease is called hydrocele, of which there are several kinds, according to the different part the water is lodged in. 1. When water diffuses itself in the cellular substance of the scrotum, the disease has the same appearances as anasarca or leucophlegmatic swellings in other parts of the body, allowance only being made for the looser cellular substance, without any fat in the scrotum than elsewhere. The causes of this scrotal anasarca are very different; one of the most common is a general anasarca spreading from the thighs to the scrotum. Any tumor pressing the vein of the scrotum produces an hydrocele of this kind. Another cause is the stoppage of the urine by a stone, excrecence, or stricture in the urethra, when the urine bursts through this canal, and diffuses itself into all the cellular substances of the scrotum, penis, and neighbouring parts. The symptoms of this kind of hydrocele are common to any other œdematosus or watery swelling. In the cure particular regard is to be had to the cause. The more general anasarca is to be cured, the hernial tumor removed, the stone, excrecence, or stricture, taken away; and then, in the œdema of the scrotum, depending on the two former causes, the common methods are to be put in practice. But when urine is diffused in the cellular substance, it soon corrupts, and either is not reassumed into the blood, or if it is, produces a general disorder in the body, and leaves enough of its grosser acrid parts to raise inflammation, and all its consequences, &c. The method of cure in this case, is to make numerous deep scarifications, and to bring the wounds to suppuration as fast as possible, otherwise abscesses will be formed; after which there will be many callous sinuous ulcers to cure, of which I have seen se-

veral examples. 2. A watery liquor may be poured into the cellular substance of the spermatic cord, as well as into the cells of the scrotum, and occasioned by like causes. If the cellular substance behind the peritonæum becomes œdematous, the watery liquor will drill down into the spermatic cord; if the spermatic, or scrotal veins, but especially the spermatic, are compressed, or if by any other way the return of the blood from the testicle is impeded, this species of hydrocele is formed. It is therefore often to be observed in those who have an universal œdema, in people whose abdomen is violently stretched by a hydrops ascites, distended liver, or any other tumor in the belly, and in such as have the true or false herniæ. The symptoms of this disease are an oblong soft tumor in the spermatic cord, which, by continuing pressure on it some time, may be diminished, or made to disappear, the water being gradually squeezed up into the cells behind the peritonæum: by changing the patient's posture, its figure changes; lying horizontally with the scrotum supported, it becomes more oblong, and of near equal dimensions from the rings to the upper part of the testicle; by standing erect, with the scrotum pendulous, it becomes larger in the lower part, and smaller at the upper. Generally when the cause is removed, the tumor disappears; if it continues, the same indications of cure are to be pursued as in the former species, depending on the two first causes there mentioned, which are similar to the causes of this. 3. Most incysted tumors are no more than a cellule of the membrana adiposa distended by a liquor stagnating in it, and therefore sometimes a cell or two of the spermatic cord is formed into hydatides, which have been taken notice of by some writers, as a species of the hydrocele (a). The figure of this tumor is oblong, the cyst being confined by the cremaster muscle, the firm cyst and fluctuating liquor are felt, and the testicle is situated below it. The general methods of cure are

(a) Albucasis chirurg. part 2. cap. 62.

nearly the same as are directed in the collection of water between the tunica vaginalis and albuginea of the testicle. Tho' tapping is the palliative, and opening the sac the radical cure here, yet it is plain from the seat of the tumor, that neither trocar, caustic, or knife, are to be applied at the bottom of the scrotum, as is done in the common hydrocele; because if the aperture was made at this place, the testicle must be pierced through before any water could be evacuated. The external side of the scrotum is the most convenient part for making the operation in this case, shunning, if we can, the distended veins of the scrotum. When there are two distinct cysts here (a), one remains distended when the other is evacuated by an operation; and the operation must be repeated to open the second. The following history of a case of this species of hydrocele, where both disease and practice were not in the common way, may not be impertinently joined to an account of a disease concerning which you will find very few observations.

One who had formerly been cured of the common hydrocele, by opening the whole sac, having in the evening made free with a bottle, was seized in the night-time with pain and swelling in the scrotum, attended with a quickness of the pulse; he was several times bled, antiphlogistic purgatives were given; he was kept on a low cooling diet, and emollient fomentations and cataplasms were applied: the scrotum swelled greatly, the skin of it became red, and a tumor within rose as high upon the left side as the ring of the external oblique abdominal muscle. At last a fluctuation was felt in the parts where the teguments were thinnest; a trocar was thrust into one of these parts, and most of the water evacuated: in some time the sac filled again; then a large train of common caustic was laid upon near the whole length of the scrotum towards the outside; and after the caustic had sufficiently operated, an incision was made through the teguments, two inches thick, into

(a) Garengot operat. de chirurg. observ. 28.

the sac about the middle of the tumor, and a finger being introduced, one of the blades of a pair of scissars was carried in upon it, by which the sac was opened, first upward to the ring of the muscle, then downward to the septum immediately above the testicle; the quantity of water evacuated was considerable. The wound bled briskly at first, but the hæmorrhagy stopped soon after the cavity and wound were filled with unform'd lint; the scrotum was covered with compresses, and supported by a suspensory bandage. The dressings were not removed for three days, when the beginning suppuration and ouzing water had made them wet. At the second dressing, the sac feeling of a callous hardness, and there being a considerable thickness between it and the spermatic vessels, the dossils to be put contiguous to it were wet with spittle, and then rolled in fine powder of red præcipitate; the eschar made on the teguments by the caustic having suppurating ointments applied to it. When the eschar came off, the sore of the scrotum had a schirrhous appearance, both in its hardness and unequal surface; however, seeing the caustic had no bad effect, it was resolved to waste the scrotum with it; for which purpose pledgits wet in spittle were pressed on powder of the common caustic, and applied to it. The præcipitate was applied daily to the sac till it became soft, granulating flesh rising every where, and laudable pus coming from it. The caustic was renewed to the scrotum as often as the eschar of the former application fell off, till it became near of a natural size and firmness. The sac was then allowed to heal, which it did very soon. Except a small equal scar, nothing is now to be observed on the scrotum, and the patient has been several years, since the cure, without the least symptom of hydrocele.

4. It may not be amiss to observe, that when tapping is to be performed to evacuate the water between the vaginal and proper coats of the testicle, the skin of the scrotum ought to be stretched very tense where it is to be pierced, and the tumor

to be made very oblong, that the instrument may penetrate easily, and that there may be sufficient space between the lower part of the sac, where the perforation is to be made, and the testicle. When the quantity of water is small, the lancet is a safer instrument than the trocar. Considering how readily contiguous inflamed parts grow together, and how many instances there are of people having a radical cure made of this hydrocele by inflammations coming on the parts, it should seem no unreasonable practice to endeavour a concretion of the two coats of the testicle when they are brought contiguous, after letting out the water through the cannula of a trocar, by artfully raising a sufficient degree of inflammation. This must be done cautiously, so that the surgeon may reasonably expect to be master of the inflammation ; and therefore the application of all irritating medicines, the operation of which cannot immediately be stopped, or any single mechanical effort, the effect of which is not certain, are not to be employed. Suppose the cannula was to be left in, by the extremity of it rubbing on the testicle, an inflammation might be gradually raised, the cause of which could be taken away as soon as the surgeon thought fit. I have never seen this practice attempted, and therefore mention it diffidently. In opening the whole sac, I prefer the application of a caustic along the tumor to destroy the skin, previous to an incision into the sac ; for by the caustic one has a larger opening of the teguments than by an incision. No such rough treatment as I mentioned the sac of the spermatic cord to have undergone, in the history related lately, is ever to be given to the testicle, when its tunica vaginalis is opened ; the testicle will not bear such irritation. These four species of hydrocele are sometimes seen together, of which the following history may serve as an example. An old man had an hydrocele, of the third species, in the left side, which became so large as to require an evacuation ; he would not allow the sac to be all laid open, but was tapped

tapped with a trocar pushed into the external side of the scrotum, by which more than a pound of water was evacuated ; then the thickness and softness of the spermatic cord discovered the oedematous swelling of its other cells. Some months after the sac filled again as full as formerly ; two years after, all the scrotum, but particularly the left side, was greatly swelled, the teguments were thick and firm, a fluctuation of liquor was perceived, not only at the superior part, but at the inferior part, where the testicle could not be felt ; a cross depression seemed to point out its being divided into two tumors ; the alternate pressure of the finger on the lower part, did not make any sensible fluctuation in the superior part ; the teguments were thinnest, and the fluctuation best felt at the bottom of the scrotum ; for which reason the trocar was first put in there, and several ounces of water being evacuated, the patient desired any further operation might be delayed. He went abroad some days, then became feverish, with sharp pain towards the lower part of the tumor. In some days more, an evident inflammatory tumor had increased considerably, and the symptoms of suppuration were begun, which the usual medicines advanced very quickly. When the abscess was ripe, it was laid open by incision, about twelve ounces of pus were let out, and the cavity in which it had been lodged, was plainly seen to be formed in the substance of the swelled testicle : the ulcer was treated in the common way, and promised to cure quickly, the cavity and remainder of the testicle diminishing daily ; but the tumor in the upper part of the scrotum continued tense, but fluctuating when pressed. Ten days after opening the abscess, upon taking off the dressings, clear water dropp'd very fast out, and the tumor subsided. This discharge continuing, the swelling went off, the ulcer healed, and the patient recovered perfectly. I have often seen children which were born with a complication of hydroceles ; a bit of flannel, warmed with

the

the fumes of benzoin, cures them in a few days. 5.  
A liquor is frequently found with the viscera in a true hernia, which may be looked upon as a fifth kind of hydrocele; when the quantity of this liquor is small, the disease is easily distinguished; but when it is large, we had need to be careful not to be imposed upon, otherwise in curing what we think a simple hydrocele, we may wound the bowels which are in the bag with it. This kind of hydrocele may be distinguished from the third species, with which it is in most danger of being confounded, by a hernia always preceding it, and by its generally yielding or diminishing when pressed upon, the water in most cases being thus squeezed up into the belly. If the water is in no great quantity, and without much acrimony, it may be pressed into the belly, from which the medicines proper in a slight hydrops ascites will assist to discharge it. When true herniæ can be reduced without any aperture in the teguments, there seldom is any thing more necessary: but when the viscera will not be reduced thus, the water may either become so acrid, or it may be in such quantity, that we do not chuse to trust its absorption from the belly; or the bowels may have blocked up the passage, so that it cannot be squeezed into the belly, while by its stretching the parts containing it, it creates great pain to the patient, and is in danger of occasioning disorders in the neighbouring parts. These two last cases are to be seen in herniæ of long standing. All three require the liquor to be evacuated: unless when the operation for the true hernia is performed, the evacuation ought only to be made by a small puncture, lest the bowels be hurt by the air. I shall relate the history of such a case An old man had long laboured under a true hernia; the tumor became at last of a monstrous size; he was confined to lie on his back, had violent pain both in the tumor and his loins, which kept him almost constantly awake; his flesh and strength were much wasted; in some places a plain fluctuation of liquor was perceived with the fingers,

fingers, without any of the unequal solid substances felt every where else ; neither the water nor solid substances could be pushed into the belly. The tumor being pressed, so as to make one of those parts where the fluctuation was most evident, and the teguments thinnest, as tense and prominent as possible, a trocar, as small as a crow-quill, was pushed very slowly thro' the teguments and cyst ; when the bag was pierced, the stilet was taken out, and the cannula pressed a little forward, through which six pounds of clear serous water ran out ; then the convolutions of the intestines, and the knotty parts of the omentum, were plainly felt, but none of them could be reduced. The patient was greatly relieved of his pain. No further operation was thought proper during the short time he had to live.

6. I mentioned observations of Saviard and Le Dran of the hernial sac of the peritoneum remaining unreduced after the bowels were put into their place, the superior part of which, being pressed by a truss, was greatly straitened, or the sides of it were grown together, while the lower part was filled with water. This may be accounted a sixth species of hydrocele. I never saw this case, nor do I know how it could be distinguished from the third kind, unless the preceding hernia led one to suspect its nature. But if one of these two sorts should be mistaken for the other, no hurt would ensue, the method of curing both being the same. I shall finish these remarks with one general caution, with regard to the management of such parts as, being greatly distended, are suddenly made to collapse, which is to imitate or supply the effect of the distending cause, otherwise the relaxed vessels will not be able to prevent too large a quantity of liquors flowing into them, and stagnating. In this way the lungs are affected when people die of a peripneumony or asthma, after a sudden discharge of liquor out of the thorax. Thus the viscera of the abdomen are varicous and inflamed after tapping in the hydrops ascites : thus inflammations seize the uterus after child-bearing ; thus the teguments,

ments, distended by water in the anasarca, or by pus in an abscess, become red, and sometimes mortify soon after a sudden discharge of the liquor which stretched them. Moderate pressure will prevent the influx of the liquors and distension of the vessels, and gently stimulating and corroborant medicines assist the vessels to recover their tone: thus violent flooding after delivery of a child, is sometimes moderated by pressure on the belly: thus when any large abscess is opened, and after some pus has been discharged, a stream of blood follows, the haemorrhagy stops soon after the cavity is filled with lint, and pressed by a bandage. Hence the necessity of keeping a constant pressure on a distended part, during, and after the evacuation of water in a dropsey, or of the pus of a large abscess in weak people.

### HÆMATOCELE.

Blood extravasated after a bruise, wound, tumor, &c. into any of the parts where water is collected in the hydrocele, occasions a tumor, which some call hæmatocele, allowance only being made for the different consistence and colour of blood and water, what has been said of the hydrocele, may serve also for this ecchymosis.

### PNEUMATOCELE.

Air escaping out of the trachæa arteria, or lungs, into the tunica cellularis, may diffuse itself every way, and, among other parts, distend the cellular substance of the scrotum and spermatic cord (a). Air blown through a pipe, put into a hole made in the skin, will distend all the cellular substance of that part, as has been done sometimes to the scrotum (b). When there is not sufficient action of the vessels, or

(a) Palsyn. anat. chirurg. traité 2. chap. 18. Littre hist. de l'acad. des sciences, 1713. Mery, ib.

(b) Dionis operat. de chirurgie, demonstr. 4.

circulation of the liquors, to blend intimately the different particles of the blood, the particles of air exert the common effects of air, in any part they are contained in (a) ; and if they make their way to any part of the scrotum, may produce the pneumatocele. A man was wounded with a sword in the belly, about half way between the navel and cartilago ensiformis ; part of the omentum came out of the wound, which was reduced soon after : the patient was exceeding faint, and his pulse weak : he lived only twelve hours after the wound, in which time his scrotum became as large as his head, with the common signs of pneumatocele. The abdomen was found full of extravasated blood, which had come from a wound of the vena portarum, through which the sword had pierced. Most of the veins and cellular substance of the abdomen, as well as the scrotum, were distended with air.—In some very putrid fevers, &c. I have heard a certain sibilus upon making incisions through the skin : hence, in a very corrupted state of the fluids, the pneumatocele may be formed. When air is introduced into the cells from the trachæa, or lungs, or by a pipe, after the access of more air is prevented, that already in the scrotum may be pressed out at incisions made in the cellular substance ; and it may be convenient to keep a suppuration in the incisions for some time after, for discharging any remains of the air. When the pneumatocele depends on internal air generated or separated from the fluids, it is scarce to be remedied. The plentiful use of antiseptic and corroborant medicines, is plainly indicated, while the scrotum is treated in the manner mentioned above.

### V A R I C O C E L E.

When this disorder is owing to a tumor in the abdomen or scrotum, or to any external compression of the veins, it disappears on removing the cause ; but if the coats of the veins are so much weakened by any

(a) *Littre Memoires de l'acad. des sciences, 1714.*

cause,

cause, as to yield to their contained blood, and appear in the scrotum tumid and knotty (*cirfocele*) ; or when the corpus pampiniforme feels all composed of large knotty strings, which is the more common case (*varicocele*), there is a necessity of using some remedy ; otherwise the stretching, which the stagnating blood occasions, creates pain, the epididymis and testicle swell, and some species of the hydrocele is in danger of being formed. A horizontal posture must be of great service in this disease, by which the gravitating force of the blood in the spermatic veins is taken off. In other postures the scrotum ought to be well supported by a bandage. This precaution is altogether necessary in all the different tumors of the scrotum. If there is a general fulness of the vessels of a person labouring under the varicocele, general evacuations are necessary, and topical astringents and corroborants are of service. If the varices give much pain, they may be opened and tied. I never saw any which required to be so treated.

### *S P E R M A T O C E L E.*

An excrescence or stricture at the *caput gallinaginis*, sometimes makes the *vas deferens*, *epididymis*, and testicle itself, to be greatly distended with the liquor contained in them. This some writers call *spermatocele*, which is easily distinguished from the varicocele. If this disease is recent, the removal of the excrescence or stricture cures it ; but if it continues any considerable time, degenerates into a schirrhous or carcinomatous tumor, the *sarcocele*.

### *S A R C O C E L E.*

When solid parts of the scrotum seem to encrease, or the fluids grow consistent, the disease is called *sarcocele*. The different diseases comprehended under this name have the same symptoms, and require the same management as the like diseases do in other parts.

parts. Having no design to enter upon an account of so many different tumors, I shall relate the history of a mortification in the testicle, which I think uncommon; then make some remarks on the operation of castration, and shall conclude with another uncommon case, where the castration was performed. A middle aged man, soon after recovering from a fever, during which considerable evacuations had been used, was seized with a very acute pain in the right testicle, attended with a quick pulse, for which he asked no advice for some days; during which the testicle, epididymis, and spermatic cord swelled considerably: after this he was frequently let blood, emollient fustes and pultices were applied to the part; he was purged with laxative ptifans, and was kept under a strict low, cooling diet, but without any relief, except what opium sometimes gave him. At length a fluctuation being felt on the testicle, a train of caustic was laid on the scrotum, and as soon as it had its effect, an incision was made through the eschar into the sac, where about two spoonfuls of thin pus was contained; the testicle being all in view, it appeared of that pale white colour which it has in dead bodies. Next day, when the testicle was pressed, the patient was not sensible of its being touched, and the surgeon felt somewhat like a fluctuation under his finger; but upon opening the tunica albuginea, the convoluted fibrous substance of the testicle started out in a pappy condition and putrid; a considerable quantity of this being cut away, the sore was dressed with warm basilicon mixed with a few drops of oil of turpentine, and a pultice was put over the whole tumor. For several days after more of the substance was cut off, till the bulk of what was brought thus away, exceeded the ordinary size of the testicle in a sound man: the parts were well fomented, the suppuration encouraged, granulated flesh sprouted out from the sides of the cavity in the testicle, the epididymis gradually diminished, the scrotum became thinner, and, in short, the sore was firmly cicatrized. One cannot now know which

which testicle was diseased, and the patient is sensible of no defect from it. To perform the castration, pinch up the skin in the groin, and make a large longitudinal incision, by which the spermatic cord may be brought in view; then take up the cord between the thumb and finger of one hand, so that the nails meet at the back part; upon which pass the aneurism needle with a handle, and the eye near the point (see the figure of such a needle in the second plate of chirurgical instruments) tie the cord firm with flat strong waxed thread; put two knots, without any compress between them, and cut off the superfluous part of the thread; then cut the scrotum down on the side next to the thigh, and turning the edge of the skin outwards, stitch the large artery; after which the superfluous part of the scrotum with the testicle in it, may be dissected away with little loss of blood; care must be taken not to hurt the other testicle, which will come in the way, if the assistant don't carefully hold it up in the groin. The part of the spermatic cord below the ligature, is not to be dissected away from its membranous adhesions, which secure the ligature from sliding afterwards. By what I saw in two such operations, there is no occasion for cutting the ring of the external oblique abdominal muscle, for there was not any retraction of the spermatic cord after the testicle was cut away in the manner here described. A large compress broader considerably at one end than the other, with a round hole in the middle of the broad end of it, for passing the penis through, and with a large cut in the middle of the narrow end of it, to allow the two parts to be folded over each other, ought to be applied over the unmade lint with which the wound is thick covered; and this is to be secured by the two ends of the T or sling-bandage, one tail coming on each side of the scrotum to be fixed to the circular belt, which ought to be double linnen or fustian quilted. After the operation, the cure of the wound is the same as of any other common wound. A young man mounting a horse,

struck the right testicle against the saddle. the pain of the blow was so sharp, that he almost fainted, but becoming soon easier, he neglected it several days; during which the testicle swelled, and the pain increased, both which were soon put away by bleeding, purging, and low diet: he continued free of any uneasiness in the testicle several months; after which, having rode post some days, the same testicle swelled, but without pain, which made him neglect to ask advice for a year and an half, and in the mean time he used much exercise, and lived in a full way. The testicle having then grown very large, he was prescribed pills made of quicksilver, and rosin of guiacum, with a low diet, which he observed to excess, by which he had the addition of the low nervous symptoms to his other trouble. The bulk of the testicle still encreasing, and a fluctuation of liquor being found at the lower part of it, a caustic was applied to the teguments there, and the eschar of it being cut through, some ounces of water ran out, but with little decrease of the tumor: soon after it increased considerably, and he spit some spoonfuls of blood; but as he had no cough, dyspnæa, or pain in his breast, it was doubted whether the blood had come from his lungs or throat. Some time after this, he complained of a weight and pain in his loins in making a little journey in a chaise; the testicle became larger than a man could contain in his two hands; the lower and posterior parts were as hard as a stone, but in the superior anterior part a fluctuation of liquor was felt; there was no more space between this tumor and the belly, than could allow a man's thumb to be pressed in between them, and in that place the spermatic cord was thick and hard; from the orifice formerly made by the caustic, fungous flesh stood out, which felt as if a liquor fluctuated below; but upon a lancet being pushed into it, none was found; his pulse was weak and slow; he could take small quantities of broth and weak spoon food without uneasiness, but his stomach could not bear flesh.

flesh or any solid food. His case was judged to be desperate, but that the only chance he had for life, was the extirpation of this testicle, which operation he underwent with great courage, and little loss of blood. The tunica vaginalis was grown firmly to the tunica albuginea of the testicle at the lower part, but the superior was extended into a bag, which contained eight ounces of water; the body of the testicle was become a compact firm schirrus, with some few suppurations in it; it weighed near two pounds. He passed the night after the operation calmly, but would not allow himself to sleep, through fear of an hæmorrhagy, the blood having ouzed through the dressings in the evening: he was easy all the three following days, with rather too little fever, only complaining of a certain anxiety, oppression, and faintness; there was otherwise no bad symptom about him. The dressings being removed on the fourth day, the lips of the wound were too little tumified, and the suppuration scarce begun; some cordial nervous medicines were given him from time to time, and he had syrup of poppies at night. He was again dressed two days after, when the lips of the wound were rather too thick; the suppuration was begun, the pulse was slow and calm, the wound was well fomented, and dressed with digestive. Next day the swelling of the lips of the wound was fallen, but without a kindly, plentiful suppuration; the præpuce and the skin of the penis had a watery thickness in them, and the uneasy sensation was greater. On the eighth day after the operation, the wound looked better than it had done, his kidnies and belly answered well; there was no fault in his pulse, he took food, had no heat or thirst, nor any complaint, except the anxiety. On the ninth morning, the swelling of the penis was decreased, the suppuration more plentiful; at noon he eat some of a chicken, and drank a glass of wine; soon after he was seized with vomiting, then with coldness and fainting; his pulse sunk, and could not be felt long before seven in the evening,

when he died. Upon opening his body, the mesentery was found inflated with air to a prodigious bulk, as were all the other cellular parts of the abdomen; all the veins were in the same condition; the auricles and ventricles of the heart were greatly distended, and collapsed with a great blast of air when cut. There was an ounce or two of pus in the cellular substance, near to the origin of the right spermatic vessels, but below that the cord was found, with the ligature firm on it, lying without the ring of the external oblique muscle. All the other bowels were very sound.

*Stones in the kidney, with remarks on the operation of nephrotomy; by Mr. JOHN DOUGLAS, surgeon in Edinburgh. Vol. I. art. 21.*

A Man of fifty-three years of age, of a robust make, was afflicted since four years old with violent pains in his right side, near the region of the kidney, from which he was never perfectly free: he applied to several physicians for relief, but to no purpose: some time after catching a violent cold, he fell into a consumption, of which he died. I was allowed to open the body, and having been always of opinion that there was a stone in his kidney, resolved to perform the operation of nephrotomy, which D. de Marchettis is said to have succeeded in. The great difficulties I met with were the thickness of the common integuments and muscles. When the peritoneum was laid bare, I found the colon between it and the kidney; when that was removed, a large nerve presented itself, crossing the place where the incision should be made. The depth of the wound was now so great, that I could not cut through the kidney into the pelvis; therefore I turned the body, and opening the kidney in the common way of dissection, took out two stones which I have sent you. See Plate IX. The largest, fig. 5, weighing half an ounce, was in the pelvis; the figure of it is triangular, and its surface

urface full of small granula, which seemed to be united after the stone was formed, being of different hardness and colour. The stone, fig. 6, was lodged in the substance of the kidney.

Besides these two, there were a great many other small stony concretions dispers'd every where in the tubuli uriniferi; many of these were bigger than the largest grains of sand.

*Improvements in performing the operation of the paracenthesis, or tapping of the belly; by ALEX. MONRO, P. A. Vol. I. art. 18.*

**T**H E place proper for passing the trocar in the paracenthesis, is agreed to be five inches below, and as much on a-side of the navel; and indeed in a man of a middle stature, and in health, it is a most safe and convenient place, for there are no large blood-vessels nor nerves, or any other parts to be pierced, from which the least danger can arise.

But this rule of measuring five inches, before the operation, in hydropick persons, is precarious; for when the belly subsides, the perforation will be found to be nearer to the navel, in proportion to the distention; for if the abdomen be swelled to double its natural size, upon letting out the water, all the parts which have been equally stretched, will be equally contracted, and the perforation will be found to be no farther from the navel than two inches and a half, and must consequently pass through the rectus muscle, and probably wound some of the larger branches of the epigastric vessels. A proper allowance therefore should be made according to the degree of distension of the belly. Mr. Garengeot (a) directs the trocar to be passed in the middle point, between the navel and spine of the ilium; but as the spine is of a considerable extent, his rule is uncertain, and the point to be pierced may be better determined by measuring four inches below, and as much on a-side of the na-

(a) *Traite des operations de chirurgie*, tom. i. cap. 6.

vel, which, in a sound state, is the middle betwixt it and the anterior spinal process of the ilium; and as the muscular parts of the abdomen are near equally stretched in the ascites apertus, it follows, that this middle point is invariable, or near so; and therefore the only proper place where the perforation should be made.

Surgeons formerly were very careful to draw off only a small quantity of water at one time, and therefore repeated it often, till the whole was evacuated; and this was always the method, till doctor Mead discovered the true reason of the syncope, distention of the vessels, &c. which attended this operation, to be owing to the removal of the pressure from the descending aorta. Besides the pain which the repetition of the operation occasioned, there was likewise great danger of a mortification, and also of a tympanites from the air passing through the cannula into the abdomen. Now all these bad consequences may easily be prevented by emptying the belly at one operation, and preserving a proper pressure at the same time, which should be done equally and gradually as the water runs out; for which end both the bandages used in England and at Paris, are not sufficient: therefore I have invented a belt (a picture of which you have in plate IX. fig. 3.) made of fine flannel and strong linnen. The body of the belt A reaches from the spine of the os ilium on one side to that of the other, to the end of this, strong straps B are sewed, and at the other end as many buckles C to answer. On the lower side of the belt, near the end, a hole is left, which may be closed by the flap D E, and by the buckles G, and straps F.

When I am to perform this operation, I mark my point between the navel and the os ilium with ink, and then put on the belt, so as the mark may be in the middle of the opening; after having put a linnen compress under the buckles, and passed the straps through them, I draw the belt tight, which forces the water towards the opening, and therefore the part becomes

becomes tense, consequently easier perforated; and being at a greater distance from the viscera, there is less danger of their being hurt by the trocar. As the water runs off, the belt is pulled proportionably tight; and thus a pressure may be continued after the evacuation, equal to what was before it. We have a certain gage to judge by, and that is the respiration of the patient; for as the difficulty of breathing is owing to the water's pressing against the diaphragm, so any force equal to it, applied to the abdomen, will produce the same effect; wherefore the straps are to be drawn tighter, till the patient finds his breathing to be as usual. When all the water is evacuated, a pledget and plaster is put upon the wound, and a compress over all. On this the flap of the belt is buckled as tight as the rest of the band.

In Plate IX. Fig. 3. this belt is represented.

- A. The body.
- B. The straps.
- C. The buckles.
- D. The opening.
- E. The flap which covers the opening.
- F. The small straps.
- G. The small buckles.
- H. The opening shut.
- I. The straps and buckles,

This belt, as now described, has some inconveniences; for though it be put smooth on the belly when distended, after the operation it is liable to fall into wrinkles, which must occasion much uneasiness to the patient: to prevent which, let a slanting flap K be added to the inferior edge, from which let two straps L L, with buckles, pass between the patient's thighs, to be fastened to the straps M M, which come from the upper edge of the band, or to a scapular bandage brought over the patient's shoulders. Thus the flap K will press the hypogastric region, which the belt could not reach, and the additional

straps will keep the circular band stretched to its full breadth.

*A remarkable extravasation of blood after the operation for the hydrocele; by Mr. J. JAMIESON, surgeon in Kelso. Vol. II. art. 14.*

**A** Gentleman sixty years old had a hydrocele, for which he was tapped annually. The fourth time I performed the operation, about twelve ounces of blood issued from the orifice, without any pain or uneasiness; and the hæmorrhage ceased with no other assistance, than bleeding him in the arm, and the application of the common dressings.

The next morning he complained of great weight and fulness in the part, and upon removing the dressings, the scrotum appeared bigger than before the evacuation of the water. A consultation being held, it was agreed to make a large incision in the part from the puncture upwards, which was accordingly done. The tunica vaginalis appeared greatly distended, and therefore was cut into, from whence a great quantity of coagulated blood was discharged, and with a little warm wine all that remained was washed out. The testicle and its vessels were evidently in a sound state, which gave hopes of a speedy cure; pledges dipped in a mixture of red wine and honey of roses, were applied to the testicle, and the rest of the wound dressed in the common way, and a proper bandage put over all. He was kept to a cool regimen, with proper evacuations, and in three weeks was perfectly well.

*A considerable share of the intestines cut off after a mortification in a hernia, and cured by Mr. WILLIAM COOKESLEY, surgeon in Crediton. Vol. V. art. 33.*

**A** Poor man who had laboured under a hernia for many years, had it so much increased upon over-heaving himself in carrying water, that he could not

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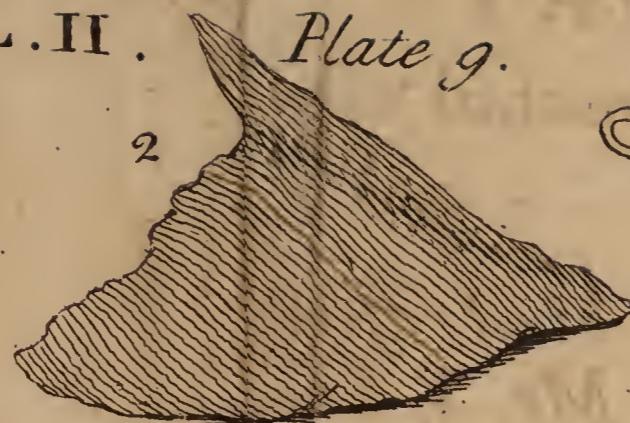
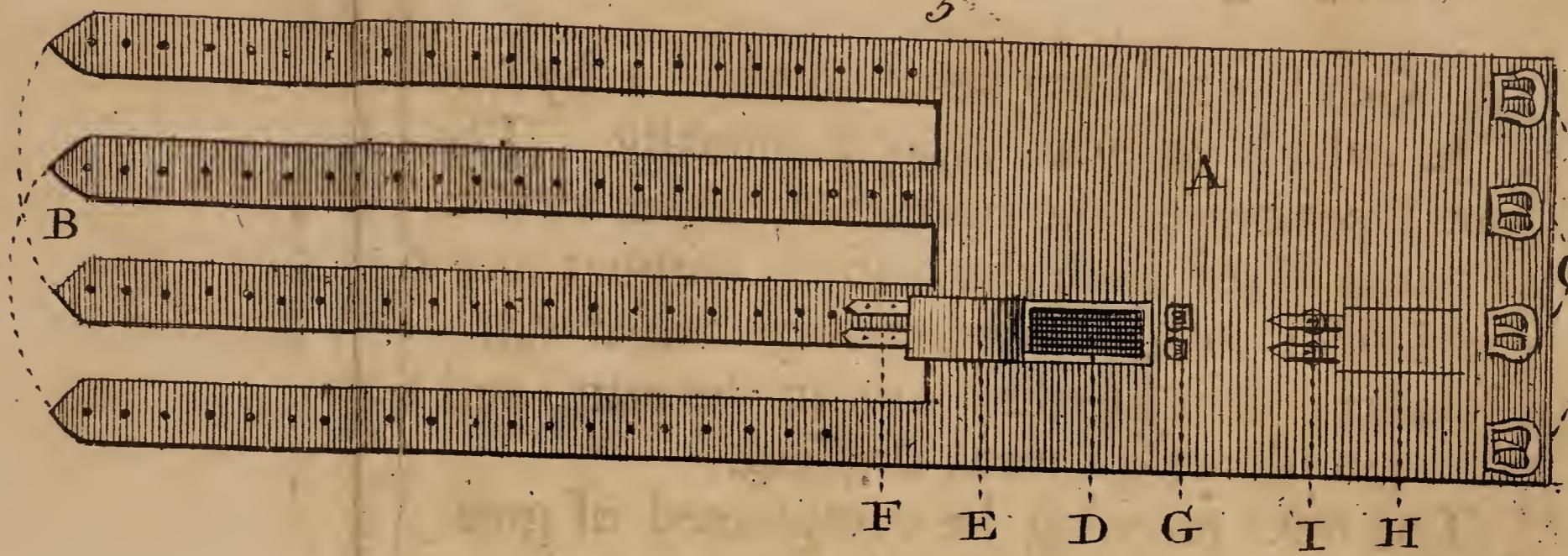


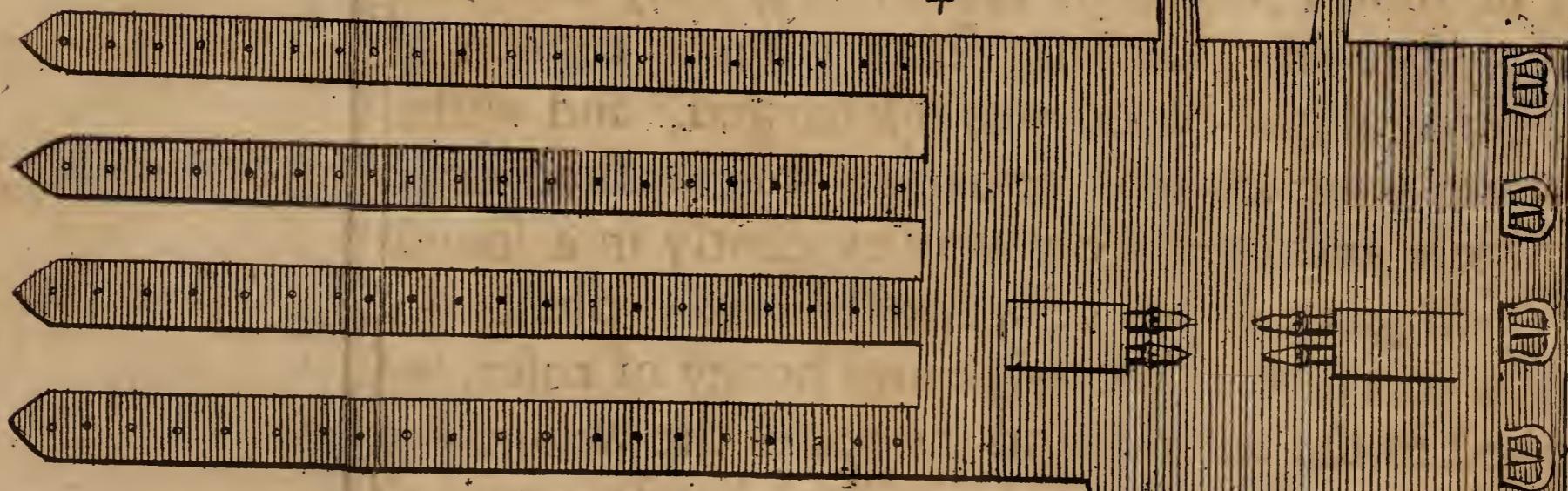
Fig. 1.

front. p. 104.

3



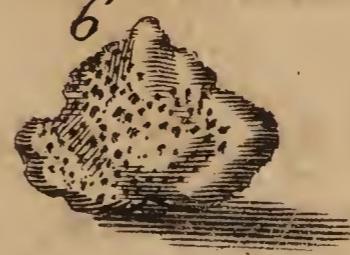
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5



6



L

L



not reduce it as usually ; he acquainted no body with his misfortune for above a fortnight after it happened, but at last applied to me. Upon examination I found the matter had made its way through the coats of the scrotum, discharging itself in great quantity. I cut away a great many putrid sloughs, and applied a warm digestive over the part for the present, and till I could provide more proper medicines. At the next dressing I found that the fæces discharged themselves in great quantity through the orifice, which he had not voided in the natural way for above a fortnight ; that the whole cavity of the scrotum was filled with excrements, mortified guts, and membranes. I immediately cut off six inches of the intestine, and great part of the scrotum, which was sphacelated, and cleansed the part with a fomentation made very hot, and dressed it as before. What is remarkable, not the least hæmorrhage attended this or any other dressing. After some days all the sloughs separated, and the wound looked well, but still the excrements came through this new passage. In order to promote their discharge the natural way, clysters were frequently given him, which brought away some indurated fæces ; and by continuing this method, the discharge at the wound lessened, and some excrements came by the anus. In about a month's time, from his first confinement, the fæces took their old course, the new passage daily contracting, till at last it was entirely closed. The ulcer healed with very little trouble. The patient since this accident is grown fat, and looks better than he had done for several years before.

*An uncommon tumor of the neck extirpated; by  
Dr. THOMAS SIMPSON, professor of medicine in  
the university of St. Andrew's. Vol. V. art. 30.*

**A** Woman after being bled in the jugular vein, found a tumor growing near where the orifice was made, which increasing in length of time to a great bulk, at last broke and discharged a great deal

of

of fancies, the smell of which was so very offensive, that it made her perpetually sick. When I first saw the tumor, it was sunk deep into the fossa on the right side of the aspera arteria; and knowing its base to be near to the carotid artery and internal jugular, I was unwilling to undertake the extirpation of it, but at length consented to it. In performing the operation, I laid the carotid bare for about two inches, and plainly saw the pulsation of it. In separating the upper part of the tumor, which was joined to the larynx by a cartilaginous process, I opened a small artery, which was soon stopped upon the application of spirit of wine: I then dissected the tumor downwards from the vein, which, at the inferior part, was confounded with it; I therefore made a ligature upon the vein, and then cut away the part of the tumor below it, except a small piece in which the vein was involved, thinking it would digest off; but finding no such separation after eight days, I cut it off just below the ligature, and found both the piece of the tumor and the vein quite solid, of a cartilaginous substance; the cavity soon filled up, and the wound was quite healed in six weeks time.

*An anomalous tumor of the leg, unsuccessfully treated by— Vol. i. art. 22.*

**A** Woman above forty years of age was afflicted with a tumor on the outside of her leg; the external part of it was equally swelled, except being more prominent in the middle, high-coloured; and upon pressing it, I thought a liquor fluctuated underneath my fingers. Her pains were so violent, as to prevent her getting any sleep; she lost her flesh and appetite, had great thirst, hectic paroxysms at night, with a diarrhœa every third day. Her menstria had left her for a considerable time; sweats, &c. followed. Thinking these symptoms proceeded from pus pent up, I applied suppurating cataplasms to the tumor, and then for two days made an incision into it,

it, but not one drop of matter followed, only two or three ounces of mucus in the cutting. I was sensible from the grating sound and the resistance, that the tendinous aponeurosis was cut. Upon taking off the dressing next day a fungus appeared, some of which I cut off, and applied escharotics to the remainder, dressing the wound with digestives. The second day I found a much larger fungus, which so greatly stretched the incision, as to bring on a mortification round the edges; I cut all this away, enlarged the opening, and dressed the leg as before. The opening being much greater by the separation of the mortified parts, I cut from between the bones a great quantity of a soft flabby substance, and went as deep as I could without opening the artery. Now despairing of success by this method, I resolved upon an amputation as soon as the fever and looseness (under which she then laboured) should be checked, but a few days after the patient died. Upon dissecting the leg, I found all the muscles changed into that substance which appeared to be a fungus. The periosteum was separated from the bones, which were rough and of a yellow colour.

Query, Under what class is this tumor to be reckoned, and what is the pathognomonic sign by which it may be distinguished from erysipelas œdematodes, or slow phlegmons?

*A tumor of the nose unsuccessfully extirpated;*  
by —— Vol. 3. art. 16.

I Was consulted about a child near five years old, who was born with a small moveable tumor on his nose, which was, when I saw it, so large as to cover all the nose. The base was so soft, that by pressing you might feel your fingers through it, and in it were several hard knots. Upon stopping the nostrils the tumor was not altered; I passed up my probe, but could feel no excrescence, nor could I force the integuments outwards. The os frontis was firm

firm and united, so I concluded the bones of the nose were complete, and that the tumor might be removed without danger. I called in a surgeon of good character, who was of the same opinion with me: accordingly I cut into the base of the tumor, and soon saw that the bones of the nose were imperfect, and the membrane moved backward and forward in respiration. Not knowing how far the bones might be wanting, I left some of the upper part of the tumor, and dressed the wound in the common way. Upon dissecting the tumor, I found it consisted of a substance harder than common fat, and that the knots were schirruses. Next morning the pulse of the child was very quick; he was also thirsty and vomited; after giving him a clyster and an emulsion, these symptoms were abated. The second day from the operation, I found the dressings, head-cloths and pillow very moist with a liquor of a particular smell, such as I never before met with. Upon removing the dressings, I saw this liquor issuing from the membrane of the nose, though I could not perceive the orifice through which it came.

I applied, from time to time, bol. armen. pulv. helvet. chalk, sacch. saturn. alum ust. vitriol. ol. terebinth. ol. vitriol. caust. lunar, and even the actual cautery. In short, I applied every thing I could think of that seemed likely to stop the lymph, but to no purpose. The sixth day the patient, after vomiting a large worm, fell into convulsions and died.

*The Cæsarean operation performed with success by  
a midwife; by Mr. DUNCAN STEUART,  
surgeon in Dungannon, in the county of Tyrone,  
Ireland. Vol. V. art. 37.*

A Woman about thirty-three years old fell in labour, but could not be delivered, tho' several midwives attempted it. After twelve days an illiterate woman, but one noted for extracting dead children, tried to deliver her, but in vain: upon which she

she performed the Cæsarean operation, cutting with a razor through the integuments and muscles of the abdomen into the uterus, and afterwards took the child, &c. out through the incision. The upper part of the incision was an inch above the navel, and a little on one side, and continued down the length of six inches in the middle, between the os ilium and the linea alba. After the child was taken out, she brought the lips of the wound together, and secured them by that kind of suture which we use in the hair-lip, and applied over all the whites of eggs. In twenty-seven days from the operation, the patient walked a mile to a house, where I then was, and shewed me the cicatrix of the incision. She complained of a swelling on the right side of her belly, which I found was as big as a child's head ; for this I gave her a bandage, and also some medicines for the fluor albus, with which she was much afflicted. The woman has enjoyed good health ever since, and has frequently walked to market six miles from her own house.

*The history of one child extracted by an opening in  
the abdomen, and part of another passed by stool;  
by Dr. GABRIEL KING, physician at Ar-  
magh, Ireland. Vol. V. art. 38.*

A Woman who had born some children, believed herself again with child in 1726. During the greatest part of her pregnancy she was sickly, but the labour-pains did not come till her reckoning was out, when the midwives, after endeavouring all they could, left her, and concluded that she had no child to bear ; the swelling of her belly diminished, and she became able to go about her ordinary business, tho' frequently she was sick and pained for about six years, when she again conceived. At the end of eight months, according to her reckoning, she felt extraordinary pains in the anterior part of her belly ; and in few days, a small ulcer broke out

below

below her navel : in some days more the elbow of a child appeared at this orifice ; she brought out the whole arm with her bodkin, and got it cut off, but continued in great misery some days longer, till some neighbours pulled out the remaining body of the child, which was a full and complete child, except the arm which had been taken away before. About three weeks after, she was extremely emaciated, and the wound almost closed. Upon pressing the left side I felt small bones, which seemed to be contained in a bag. She shewed me several decayed bones, which had evidently belonged to a *fætus*, which she had passed by stool and urine. She has lived seven years since, her viscera falling often out at the old wound, nor dares she keep them in by a belt, because when troubled with wind, the pain becomes intolerable when the guts have not their liberty. From another woman the midwife took a child by the Cæsarean operation : I drew out the needles, which the midwife had left to keep the lips of the wound together ; the muscles contracted into a lump at the lower part of the belly, which increased, and at last broke, and run considerably. She is capable of doing something for her family, with the assistance of a large bandage which keeps in her intestines. This child was not extrauterine, for several, besides the midwife, assured me that a leg of it presented itself to view in the vagina before the operation (a).

*An extraordinary tumor impeding the birth of a child ; by Mr. JOHN GEMMIL, surgeon in Irvine. Vol. V. art. 36.*

I Was called to a woman in labour, whose child was born as far as the ossa innomina<sup>t</sup>a, in which condition it had been four hours. I easily could put my fingers round the child, as far as the head of the femur ; but by no means could deliver the woman, till, by pushing my hand between the child's

(a) This is probably the same woman's case with that related in the preceeding article.

thighs, I felt something adhering to the child, thro' which I thrust my finger, and immediately a considerable quantity of water rushed out ; after which there was no difficulty in bringing the child away. What I had pierced with my finger proved to be a bag, larger than the child, which was of an ordinary size, formed by the skin from the os pubis all round the anus. This tumor was of the shape of a pear, the smaller part of it coming out from the vulva and anus. When I opened it, it was all composed of membranous divisions full of water, which were disposed in such a way as to make it resemble an orange ; in the middle of it there was a hard fleshy substance.

*An essay on the diseases of the lacrymal canals ;  
by ALEX. MONRO, P. A. Vol. 3. art. 15.*

**G**R EAT improvements might be made in the cure of these diseases, if the situation and structure of the parts affected, and the disorders which they are liable to, were duly considered. I have made choice of the fistula lacrymalis, a disease tho' very common, yet imperfectly treated of, to explain and demonstrate the justness of this operation.

The fistula lacrymalis is such a disease in the tube which conveys the tears from the eye to the nose, as will prevent their passing as usual. I shall describe these ducts with a view to their diseases, and illustrate them by figures.

The two lacrymal points A B, (plate X. fig. 1.) situated each on a little prominence near the interior extremity of the edge of each palpebra, take in the tears to be conveyed by two ducts of about four tenths of an inch long, which are continued from the points inwards, and somewhat downwards, (the superior being the longest and most oblique) till they open into the lacrymal sac D. Between the points and the angle, where the palpebræ join, the caruncula lacrymalis C is placed. The lacrymal sac D lies upon the groove

groove in the anterior half of the os unguis, to which its posterior part adheres slightly; but this membranous bag is connected firmly to the ridge which is raised on the os unguis, at the posterior part of the groove, serving as a boundary between the orbit and exterior parts; so that the lacrymal half of the os unguis is without the orbit, while its posterior half constitutes a share of the bony sides of that cavity. Such another firm connection of the lacrymal sac to the bones, is also to be observed at the anterior part of the groove, where a small suture joins the os unguis to the nasal process of the maxillary bone.

The lacrymal groove of the os unguis D; is about two tenths of an inch broad in its middle widest part, and is about half an inch long from the top, till it is covered by the maxillary bone, and a compleat bony canal is formed for inclosing the whole lacrymal duct, which, after a short progress, opens into the nose immediately below the middle of the superior edge of the lower os spongiosum, where its extremity becomes smaller than any other part of it.

When we view the side of the nose after the bones have been divided by a perpendicular section, we see the ossa spongiosa K L, fig. 2. situated near horizontally, depending by their superior edge from the other bones, and removing farther from them as they descend. The anterior extremity of the superior os spongiosum K, being fixed to the other bones near where the upper part of the os unguis is joined to the frontal bone, and the superior edge of the inferior L is a little below where the great lacrymal duct begins. Thus far the description of the parts; now for the diseases.

When the lacrymal points, or the tubes are grown together, it may be known by the tears running down the cheek, and instead of a tumor, you may see a depression of the teguments over the sac, and the points so altered, as not to admit of the smallest probe: in this case the patient can only be relieved by the following, or a like operation.

First, Open the lacrymal sac with great caution, then pass a round curved needle, armed with a waxed thread, from the palpebræ, where the punctum lacrymale naturally should be, quite into the superior part of the sac ; then take away the needle, leaving the thread as a seton : perform the same operation at the other punctum.

The inflammation which follows this operation is quickly gone, and the tears passing along with the threads, will soon make the passage callous, and fit to answer the ends of the natural tubes. When this is done, let the threads be taken away, and the wound healed with all expedition. The success with which an artificial passage, formed this way into the mouth, has supplied the salivary duct (see the following article) may make us judge that the method just now proposed might also be successful.

When the fibres of the lacrymal sac are too weak, or the duct is obstructed, the sac is stretched too much by the pressure of the tears which flow into it. In this case, the sac is enlarged, but without hardness or pain, and upon pressing disappears, its contents passing through the puncta.

In this disease at first the tears appear pure, but afterwards mix with matter which comes from the excoriation of the sac ; but least a small abscess or tumor of the integuments should be mistaken for the disease of the sac, remember it is easily distinguished from it by pressing the tumor, which will not be diminished thereby ; nor will any tears or pus be discharged through the puncta. The method to cure this disorder (which some call a dropsy of the sac) is to pass one of Anel's probes through the puncta into the nose, and then to inject a proper liquor, such as lime-water mixed with honey of roses, and a small quantity of spirit of wine, which should be often repeated, not forgetting to apply a proper compression upon the part.

I must observe, that the duct from the superior lacrymal point A, fig. 1, is more oblique than the inferior,

ferior, and will afford an easier passage to the probe; and as the passage is crooked, the probe should be bent into a small arch of a large circle. In order to pass it, lift up the superior eye-lid, turning the edge a little outwards with one hand; then with the other hand rested upon the cheek, near the external corner of the eye, introduce the probe into the punctum, its convexity being to the eyebrow: then raising your hand gradually as you push the probe forward, bring it almost perpendicular to the sac, by the time the probe reaches its inferior part; then turn the concave side of the probe to the nose, and push it downwards through the great duct; after move it up and down, to remove any matter which may be contained in it. The injection will be much easier made through the inferior punctum B, because the lower eye-lid has less motion than the superior, and is easier kept steady.

But if this method proves unsuccessful, and the lacrymal sac be ulcerated (which you may know by the pus pressed out of it) the sac must be opened. I have always found, in making the incision, notwithstanding all the pressure that I or my assistant could make on the puncta, that the pressure of the knife squeezed the fluid out of the sac, so that it could not be opened without the risk of cutting the posterior part of the sac, and laying the bone bare, which ought to be carefully avoided: to prevent all which, I pass a probe into the bag, which an assistant raises up, and then cut through the integuments, till I feel the naked probe; and afterwards, with a pair of scissars, open its full length.

In performing this operation, you must cut thro' the orbicular muscle, but no inconvenience can arise from it, for the cicatrice will fasten it again firmly to the bones; but at the same time you should be very careful not to cut so near the joining of the palpebræ, as to be in danger of dividing them, which would occasion great deformity; and likewise to avoid the angular vein and artery. When the sac is thus laid open, endeavour to free the nasal duct from every thing

thing which obstructs it ; this being done, apply small soft dressings of lint, with proper medicines, into the sac, but with a very moderate pressure, to avoid giving pain, and bringing on an inflammation : then cover the lips of the incision with a pledgit, and apply over all a sticking plaster of a semilunar form. When the sac is once found, the opening in the integuments will soon heal, if dressed superficially. If the lips tend to grow callous, touch them now and then with the lunar caustic. This method I have often practised with success.

When the nasal duct is stopped by a fungus, which is known by the pain attending it, and the obstruction the probe meets with in passing through it, proper medicines ought to be injected, and such a substance passed into it, as may prevent its sides growing together : I prefer a tent of lint to the bougie or any oily application, because they prevent healing, and will not contain any proper medicines.

Now let us suppose that the duct is so entirely stopped, as not to admit a probe, or any fluid, to pass into the nose, and that the obstructing matter be soft and yielding ; in this case I think there is no necessity of hurting the bones : what I propose, is to pass a small shoemaker's awl through the fungus, and then to keep the passage open by a proper tent or seton. When you are to pass this instrument, turn the concave side of it to the nose, and thrust it gently through, altering its direction when the point touches the bone.

You will know when the instrument has passed far enough, by the bleeding of the nose ; then draw it back, and with the help of a flexible eye-probe, pass a seton through this opening into the nose.

In plate X. fig. 3. you see the representation of a probe about three inches, bent to a semicircle, with half an inch towards the point left strait ; this I have passed from the lacrymal sac into the nose without force, or altering its form. The seton should remain unmoved till it is loosened by the suppuration coming on, when it may be moved with ease, and proper

medicines applied to it. The suppuration will soon waste the obstruction, and the canal in a short time will be brought to its natural state.

If the duct was obstructed when the patient was a child, by the time he grows up it may be so obliterated, that the above method cannot be used: in this case it will be necessary to make an artificial passage into the nose; but as this case cannot be known till the sac is opened, we ought to be cautious in proceeding. The place where the os unguis should be perforated, should be that on which the most depending part of the sac rests; you should by no means attempt the opening where the natural duct was, lest the instrument passes into the sinus maxillaris. The proper place and direction for this, may be known by observing fig. 1. where two pins are placed which pass through the ossa spungiosa in fig. 2. M N; for the pin E, fig. 1. being thrust perpendicularly through the os unguis, at the middle of the sac, pierces the anterior extremity of the superior os spongiosum at M, fig. 2. when the pin F, in fig. 1. thrust obliquely through the os unguis at the bottom of the sac, pierces the os spongiosum inferius at N, fig. 2. E, with the perpendicular direction of F, will answer all intentions. All the instruments which I have seen for perforating the bone, are, in my opinion, very faulty, as they destroy more of the os unguis than is necessary or safe; for when that part of it which forms part of the orbit is affected, inflammation and suppuration, within the orbit, may ensue, and be attended with such troublesome and dangerous symptoms, as no art can remove.

The actual cautery occasions great pain and inflammation, and leaves a carious bone, which much retards the cure; the blunt stilet fractures the bone, and sometimes passes so far into the nose, as to break the septum; the blunt perforative, or the tapering forceps, make a passage which will admit the end of one's finger, where one the size of a crow-quill is sufficient; I therefore recommend for this use a drill or small

Fig. 1.

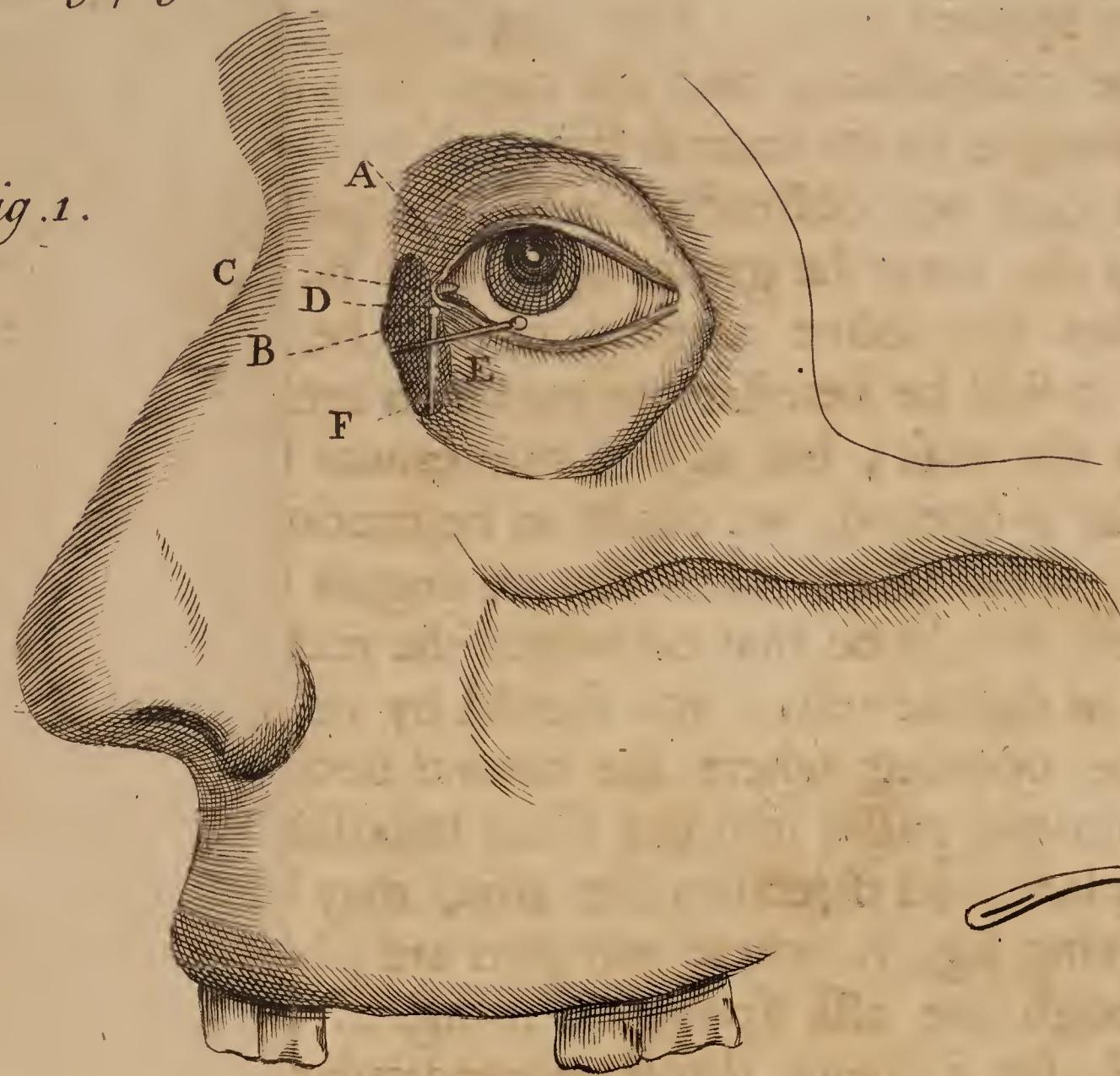


Fig. 3

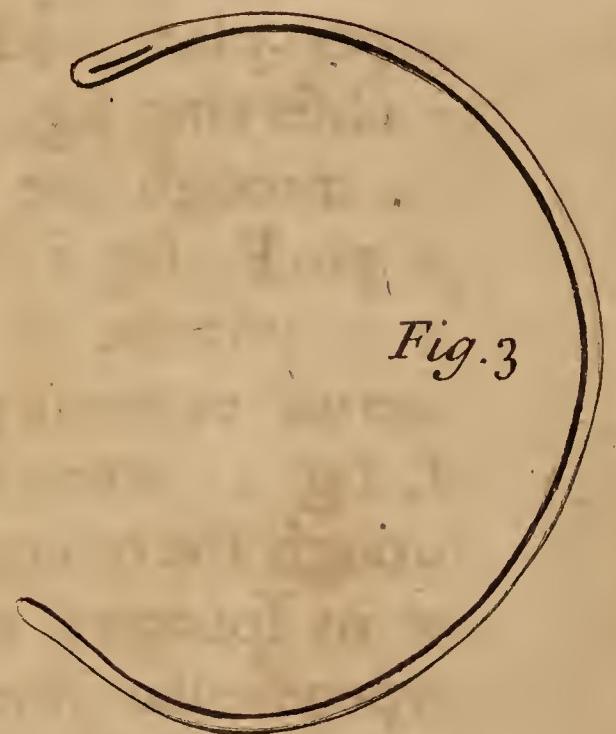
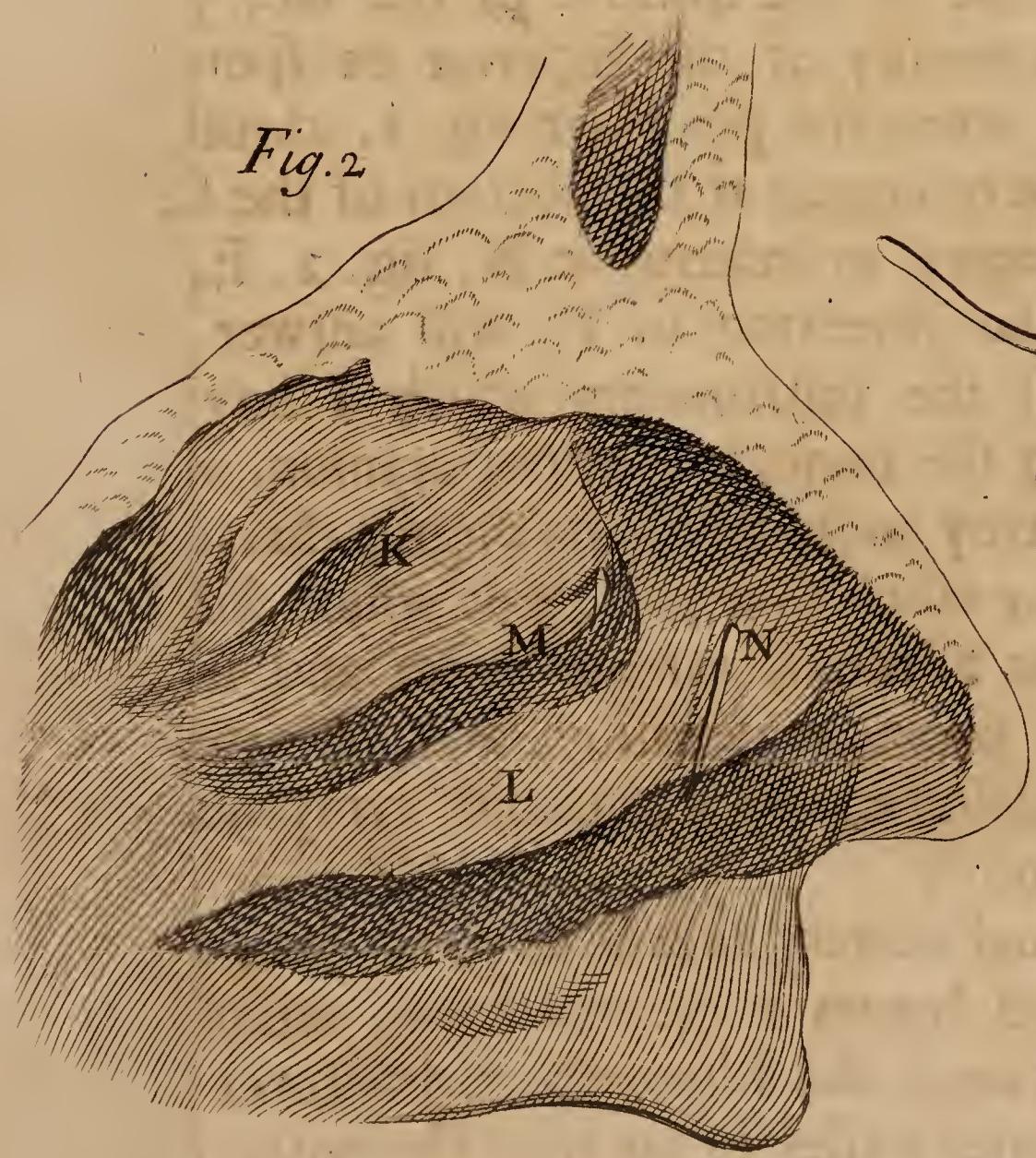


Fig. 2





small gimblet, or the like, which will perforate with little force ; the gimblet I have always used with success. To lay the bone bare before you perforate it, is of no consequence, because the wounding the lacrymal sac can't occasion more pain than piercing the membrane of the nose : however, as it will occasion less pain, make an incision in the membrane where the perforation is to be made, then lay so much of the bone bare as is just necessary for placing the instrument ; for if more of it is laid bare, it will become carious, and you must wait for the exfoliation, which will lengthen the cure. The whole of the operation then, is to open the fac, as is above laid down, to make an incision in the membrane of the lower part of the groove, and then to pass the instrument gently through the bone into the nose, till some blood runs from it ; into this opening to put a tent, and apply the common dressings, which should not be removed till the suppuration comes on.

When the inflammation is over, endeavour to harden the membrane which covers the edges of the bone, with some drying medicines, such as honey of roses with spirit of wine, increasing the latter as the cure advances.

As soon as the tent ceases to give pain in passing the opening, leave it off, and heal the external orifice as soon as possible, which may be done in a very little time, if the lips are not grown callous.

But if the matter in the fac has destroyed it, or made the os unguis carious ; or if the caries began in the bone, and its ichor has corroded the membrane, and a large passage has been made by it into the nose, the integuments remaining whole, it will be a long time before the lacrymal canals can be observed to be affected ; and the disease must be treated as an ozæna. But if there be no passage into the nose, you will know the disorders by a fetid ichor coming out with the tears, upon preffing the lacrymal sac. The method of cure in this case, is to open the fac, and to remove all the caries, and then to perforate the membrane of the nose, and afterwards proceed as

though the bone was artificially bored. To hasten the separation of the caries, some recommend the actual cautery, tincture of myrrhe, &c. but I think the best and speediest way is to break away all the bone which is carious with the forceps.

I have all along supposed in this disorder, that there is no opening in the integuments, but when they are corroded by the matter. The method of cure is the same as before directed, but with this advantage, that the opening into the sac is more easily made, when the external orifice is big enough to admit the proper instruments ; but when it appears to be too small, it must be dilated by a sponge tent.

*Artificial passages for natural liquors; by the same.* Vol. V. art. 29.

**A** Gentleman after a tooth-ach found a hard tumor above the joining of the cheek and gums, near the second large tooth in the upper jaw on the left side. The tumor after some time broke outwardly, and discharged a fetid matter and several pieces of carious bones. When I first saw it, I found a tent in the ulcers about the size of a goose quill, and an inch and an half long ; I took the tent out, which was covered with purulent matter ; and upon inclining his head forward, and to the left side, a clear liquor like spittle dropped from the ulcer. No such liquor or pus had ever run out of his nose ; a probe a little bent was turned all round a large cavity lined with a smooth membrane ; the roots of the rotten tooth, from whence this disorder arose, were still in the jaw ; to remove which I cut the gum between the roots of the tooth, and pushed in a piece of iron between them, and forced one root quite out of the socket, and then the other easily followed. To give a discharge of the mucus into the mouth, I passed a shoemaker's awl from the joining of the gums and cheek into the sinuous ulcer, and by the help of a flexible probe introduced a small cord into the opening made by the awl,

awl, and brought one end of it out through the ulcers, directing the mouth to be frequently washed with brandy, to make the new wound callous. A little time after the seton was removed. Upon this the new passage, as well as the external orifice, closed up. Soon after a tumor appeared upon the palate, which was opened, and some small pieces of bone came out of it, since which the patient has continued well.

A gentleman had a tumor on the inside of his cheek, which being opened some glairy matter was discharged, but the swelling soon appeared again, and was, when I first saw him, as large as a small ball. In order to cure it I extracted the rotten tooth, but no matter following, the tumor was opened within the cheek, clear mucus being pressed out of the orifice. The tumor subsided, and we plainly could feel three exostoses pointing to each other, between which the sac had been: one rose from the root of the nasal process of the maxillary bone, the second grew from the same place; and the third, which felt like a cock's spur, sprung from the cheek bone: we could neither by feeling with the probe, or from the nature of the matter, judge the bone to be carious; a tent was put into the wound, and an injection of brandy and honey of roses frequently thrown in. After a proper time the tent was laid aside, and the patient has had no return of the swelling.

A lady who was troubled with a swelling resembling one of those before described, to cure it, had the roots of a rotten tooth extracted, upon which a yellowish liquor, without any fetid smell, flowed out of the sockets, and the swelling immediately subsided: I passed a small probe through the socket into a large cavity, but could not feel any bone bare, nor could I find the passage by which the liquor passed from the cystis into the socket of the tooth. The method pursued in this case, was much the same as in the preceding, and with equal success.

*The cure of an ulcer in the cheek, with the superior salivary duct opened; by the same. Vol. II. art. 13.*

A Gentleman being seized (upon catching cold) with a hard tumor in the middle of his cheek, applied to a surgeon for relief, who endeavoured to disperse it; but, upon its suppurating, he opened it on the inside, and afterwards on the outside, and applied escharoticks to destroy the induration; which when he had effected, he endeavoured to incarn and cicatrize, but in vain, a clear lymph still ouzing thro' it. He then enlarged the orifice, and applied astrin-gents, &c. but without success. Being accidentally in the patient's neighbourhood, I was sent for to give my advice concerning his cure; I found the external orifice as large as the end of my thumb, and could see at the bottom the salivary duct, with a hole in it large enough to admit the button of a probe; through which the saliva flowed in great quantity. I imme-diately made an artificial opening into the mouth in the following manner: with two fingers of one hand I stretched his cheek outwards, and with the other passed a pretty large awl into the duct, and from thence obliquely forwards into the mouth; and after, through this opening, with an eyed probe, conveyed a small skain of silk, one half hanging from the corner of the mouth, and the other from the cheek, both which I tied loosely together, and put upon the ulcer dry lint, and a plaster over it. In three weeks this operation had the desired effect, by rendering the passage through which the cord passed callous. When the cord was removed, the external ulcer soon healed.

This operation is plainly directed by Mr. Cheselden in these words (a). "When this duct is divided by an external wound, the saliva will flow out on the cheek, unless a convenient perforation be made into the mouth, and then the external wound may be healed."

(a) Anat. book iii. chap. 3.

*Of the cure of lymphaticks opened in wounds; by  
the same. Vol. V. art. 26.*

I Have sent you two very remarkable examples of the cure of wounds, where a phænomenon (not taken notice of by any writers) and which may possibly perplex young practitioners, has appeared, namely, the rising of a fungous substance, from whence a constant stillicidium of lymph flows, which hinders the cure.

I extirpated a large steatom from a man's arm, the base of it reached from the middle of the deltoid muscle to the elbow, and the cephalic vein ran along the middle of it; the wound contracted very fast till a yellowish substance sprouted up from the part where the cephalic vein had been divided; from this the lymph continually ouzed in such a quantity, as to wet all the dressings. This substance, though cut away, quickly grew again, and the discharge of the lymph increased greatly; at length it was cured by applying Roman vitriol to the fungus, and spirit of wine afterwards to the eschar.

A woman who had been blooded in the basilic vein, soon after observed a tumor at the orifice: some months after I saw it, and found that it disappeared by pressure. After trying various methods to cure it, but to no purpose, I performed the operation as laid down in page 55. The sac, in which liquid blood was contained, appeared as strong as the cystis of incysted tumors, and was formed in the same way, viz. by the stretching and thickening of a part of a cellular membrane; I cut none of it away, for I wanted to see what changes it would undergo. This firm bag became every day thinner and thinner, with papillæ of flesh sprouting out from it, till it all appeared of the same colour with the rest of the wound. A fortnight after a white fungus arose at the extremity of the wound where the vein was divided, which I destroyed with the lunar caustic, and applied spirit

of wine on the eschar, which had the desired effect. The sore was perfectly healed in six weeks, the pulse was plainly felt the day after the operation, and is now as strong as tho' no ligature had been made on the artery.

*Of the separations of tendons in sores; by Dr. SIMSON. Vol. V. art. 25.*

THE separation of tendons, or some part of them, in sores, has not been taken notice of by any writer I have met with, therefore I imagine the following account may be useful to the public.

A baker, after sifting of wheat, felt a violent pain above the third joint of the thumb, where the tendon of the flexor is inserted; the pain increasing, the next day he asked my advice; I ordered him a poultice of boiled onions and soap. In a short time after a tumor arose, in which I could feel matter fluctuate. I laid it open, and discharged matter mixed with blood, and then applied an emollient poultice over it; the fifth day the thumb was blistered all round, and a fungus appeared at the wound; I dressed it with tinct. myrrh. comp. & linim. Arc. cum sp. terebinth. warmed; the pain soon abated, but the wound did not seem disposed to heal; at last a membranous body appeared at the orifice, which I easily brought away. I continued to apply the turpentine to the fungus, and in a month's time the wound was quite healed. This membrane I take to be the capsula of the tendon, for the patient had still the use of his thumb. Much the same process I had in a man who was wounded in the tendon of the fore-finger, only that I fomented it with four claret; soon after a ligamentous body appeared at the wound, which I drew out as in the preceding case.

I applied four claret, having seen the good effects of it in a hand much swelled, from a hurt of the tendon of the thumb: an abscess formed itself under the thenar muscles, which was opened; but the swelling extended

tended itself to the ligamentum annulare ; the cort. peruv. was ordered ; but after he had taken several doses, I could not perceive any good effect from it. In the mean while I used fomentations of claret, and in a short time another abscess appeared, which I opened, and discharged some good matter ; and tho' a pultice was kept to the part, it grew hard, and a fungus appeared at the wound. Upon this I used sour claret warmed, and all the parts soon subsided, and the hand was soon quite restored.

You see here the different effects of restringent and emollient medicines.

A woman was seized with an erysipelas in the back of her hand ; at length it produced an abscess, from whence I took several pieces of tendons nearly round, which were plain distinct bodies, and their surfaces entirely smooth.

The last case I shall give you, is that of a woman who applied to me upon account of a wound she had received, at the point of her elbow, from a fall. Upon examining it, I found the matter which came from it very fetid ; and passing the probe into the orifice, I felt the bone bare. I thought proper to have a consultation of the most eminent surgeons in the place, who all agreed that amputation was the only thing to be depended on ; but as she was old and weak, the success of it was doubtful, therefore recommended a spirituous fomentation to be applied to the part, and a decoction of the woods for her drink. In some days after a loose body appeared at the orifice, which was now considerably enlarged ; it was pulled out, being as thick and large as one quarter of an ordinary herring milt, and something of the form, tho' somewhat putrid at the extremities, but firm and tendinous at the middle. After this the matter decreased ; but another abscess appearing some inches above, we opened it, which soon healed along with the first sore, without any loss of the use of her arm (which she employed in her ordinary work for some years afterwards) or any apparent exfoliation,

as I have seen in other cases with carious bones, especially in the small-pox.

These cases, I think, when compared, will appear to be of the same nature, though happening in different parts; and if they are to be reckoned as a species of the panaris, when happening at the fingers, why should they not be so at the metacarpus and elbow?

Thus I have shewn how frequently tendinous bodies separate in wounds of the joints, and by what management they are easiest made to separate, so that we may avoid making dangerous incisions into the inflamed tendinous parts. That the tendons may be separated by force from their muscles, we find in Peter de Marchetti, observation 62. I remember likewise a patient of my own, who applied to me for the cure of a gangrenous ulcer, situated between the first joint and the metacarpus; the fellow, being under great pain from the fomentation which I applied to it, seized upon the second joint, and pulled it off, together with the tendon, some inches long. In a short time after he was perfectly cured.

*A fracture of the skull, with loss of part of the substance of the brain; by Mr. D. BAINE, surgeon in Pembroke. Vol. V. art. 28.*

**A** Boy, about eight years old, was wounded by a kick from a horse an inch above the orbit of the left eye; the wound extended itself to the external canthus. Upon examination I found that the skull was fractured in a triangular form, three quarters of an inch long; the superior angle was depressed and somewhat loose: I laid the bone bare, and dressed it up in the common manner, bled him in the arm, and ordered him a clyster, &c. The next morning I fixed the screw of the trepan into the lowest part of the fractured bone, upon which the upper angle was so much raised, that I passed a spatula underneath it; and then pulling up the inferior part with the screw, easily removed the whole piece. I applied

applied a syndon dipped in spirit of wine and honey of roses, to the dura mater, and the common dressings over it. In the afternoon he had a clyster, which procured him a stool : he was seized with a convulsive fit and delirium in the night ; but next morning he was pretty well, and spoke rationally. I dressed him every day, and sometimes brought away a tea spoonful of the brain ; notwithstanding which, he was perfectly cured in ten weeks, and is now a stout, lusty young fellow.

*An uncommon tumor of the breast ; by Dr. PETER PATON, physician at Glasgow. Vol. I. art. 17.*

**A** Woman, about thirty years old, shewed me a tumor in her left breast, which was very hard and painful, and prominent in the middle ; she kept it covered with a plaster of diachylon with the gums : by degrees it grew soft ; and upon her reaping corn (six months after) the swelling burst, and a large bag fell out of it ; the ulcer in a very little time after healed. The bag was composed of several coats, the external white and opake, the internal pellucid, and contained a liquid like clear water, but fetid, and of a bitter taste.

*A wound with a hot iron penetrating the pelvis ; by Dr. ANDREW WILLISON, physician at Dundee. Vol. IV. art. 15.*

**T**H E following history I chuse to insert, not as it contains any new method of cure, but as it shews that nature, but a little assisted, cured a disease which I looked on as desperate. A smith, with a red-hot iron in his hand, ran against a young fellow with such force, that it passed into the buttock an inch and half from the anus, and came out through the linea alba, an inch above the os pubis. When I came to him, which was soon after the accident, I found him with a low intermitting pulse, bilious vomiting,

miting, pains in the belly, thirst, cold sweats, &c. I ordered him to be blooded in a large quantity, and a clyster with turpentine to be thrown up, which gave him some relief; the next morning the symptoms continued. I found he had made no urine, though he had drank plentifully. His pulse was quick and hard, therefore I ordered him to be blooded again, and his belly to be embrocated with oil of scorpions. Thirty hours after he was wounded, he voided some urine resembling such as people troubled with the stone do: at night the clyster was repeated, which brought away a good deal of slime. He drank an emulsion with nitre and a cordial julep, which check'd the violence of the vomiting. The third day he used the embrocation, clyster, &c. The urine and excrements now came through the wound near the anus, into which I injected a digesting medicine with honey of roses. In ten days time the urine found its way through the penis; in ten days more the excrements came through the anus, and in six weeks he was perfectly well.

*A mortification of the intestines in a hernia; by  
Mr. JAMES JAMIESON, surgeon in Kelso.  
Vol. I. art. 20.*

**A** Strong man, about twenty-eight years of age, being seized with a violent cholick, had a purge given him for it, which operated well; the next day a swelling appeared in the right groin and side of the scrotum, in the middle of which, on the second day, I perceived a mortification the bigness of a shilling, and on the third day the mortified part separated, and a large discharge of excrements followed. When first I saw him, the swelling was entirely gone, without any assistance to reduce the gut to its proper place, and his excrements came out through the opening in great quantity. In a consultation it was agreed to inject warm red wine, and to keep a compress dipped in the same liquor on the part, and to apply over all a four tailed bandage; also to confine the patient to his

his bed and a milk diet, and to inject an emollient vulnerary clyster every day : by this method the quantity of excrements passing at the groin soon diminished, and the discharge by the anus increased. On the twelfth day, no excrements passing by the groin for some hours, he was seized with great pains, vomiting, hiccups, cold sweats, &c. On this I let him bleed plentifully, injected a clyster every three hours, and gave him an anodyne cordial ; in about twelve hours the symptoms abated, and soon after went off, the patient having evacuated some excrements at the groin : his former regimen was now restored, but I ordered honey of roses with the wine for the injection, fomented his belly twice a day, and after applied an emollient cataplasm to it. The discharge of the groin daily diminished, and soon after nothing was to be seen on his linnen but an ichor without smell. This discharge still continues in a small quantity. He is now returned to his usual employment of attending cattle, and is in all other respects in good health.

*A wound of the neck with uncommon symptoms ;  
by Mr. JOHN KENNEDY, chirurgeon-apothecary in Edinburgh. Vol. I. art. 15.*

**A**CAPTAIN of a man of war, about fifty years of age, was wounded by a bullet on the right side of the thyroid cartilage, which passed in below the mastoid muscle. I dilated the orifice, and applied the usual dressings and bandage. Next day I discovered the bullet near the costa of the scapula, which I extracted, by making an incision upon it. The common methods to prevent inflammation were used, and the wound healed in five weeks. No haemorrhage ensued from his receiving the wound, but his right arm grew benumbed ; upon which I applied to it warm fomentations and strong spirits. The arm soon recovered some warmth, but such a violent pain seized his thumb, that he was almost delirious with it. This continuing, notwithstanding he was let blood,

Fig. 1.

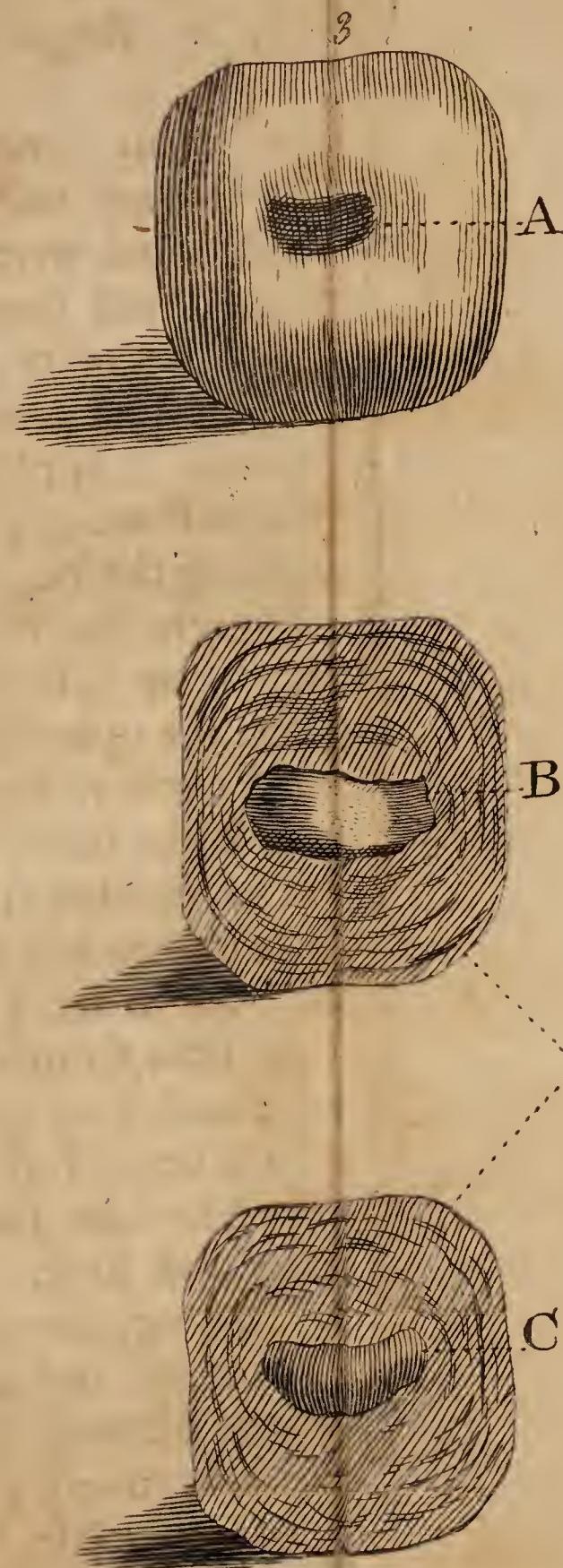
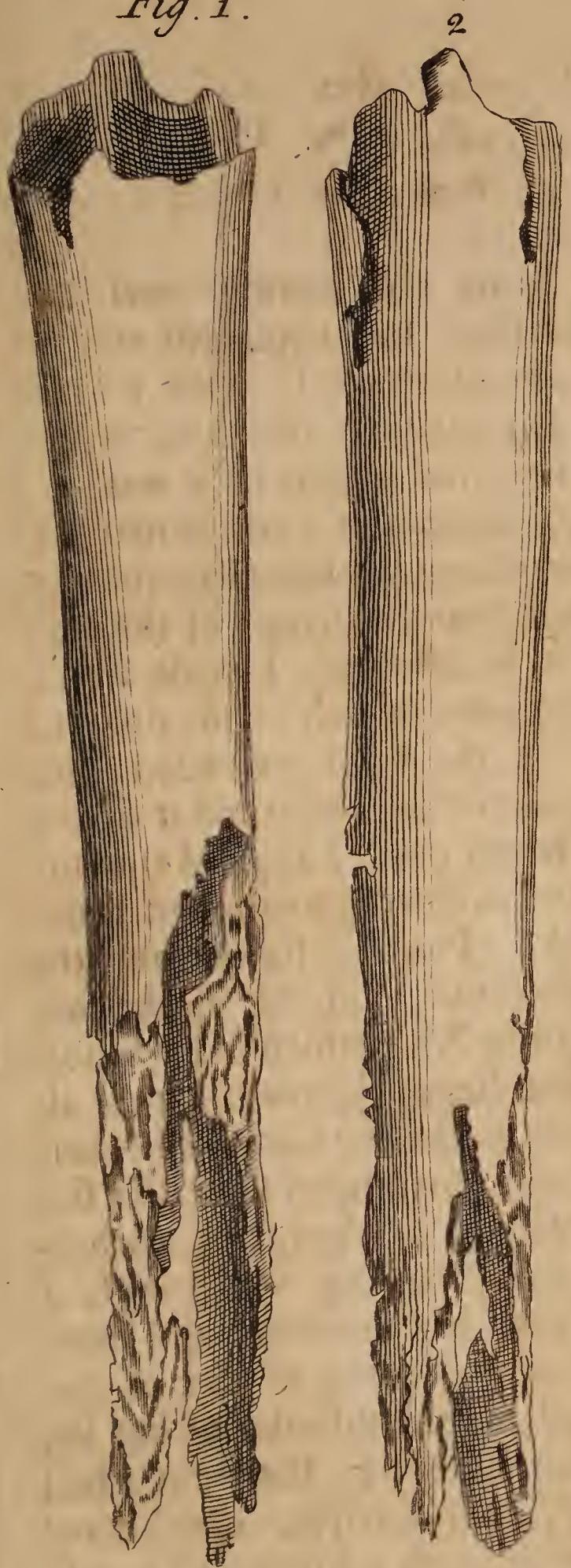


Plate IX. fig. 1. represents the shape of the instrument; and fig. 2. represents the bone of its natural bigness.

*The larger share of the tibia taken out, and afterwards supplied by a callus; by Mr. DAVID LAING, surgeon at Jedburgh. Vol. I. art. 23.*

A Girl about seven years old, having received a slight hurt on her leg, the tegument on the tibia swelled, but were not discoloured. Two months after, a small red spot appeared on the skin, which soon became an ulcer; the child at this time was very weak, and had all the appearances of a confirmed hectic disposition. I applied various medicines to the leg, but with no advantage; and from the nature of the matter imagining the bone to be affected, I made an incision through the teguments, which confirmed my suspicion. The disease of the bone extended itself farther than the opening, therefore I enlarged it by degrees, till I came to the sound part. I applied tincture of myrrhe to the bone, and ordered a medicated lime-water for the child to drink. In about six months, the bone I send to you was taken out, [vid. fig. 1. the fore view, the back in fig. 2. plate XI.] which is the whole body of the tibia from three fingers below the knee almost to the ankle: in a few weeks the sore was healed, but the child being suffered to press upon the callus too soon, the leg became something crooked, but is otherwise strong and firm. Since her leg was cured, a new ulcer has appeared near her shoulder, and there are now standing out of it two pieces of the os humeri. From hence it is plain, the disorder of her leg did not arise from any external injury, but from a bad habit of body. Mr. William Carlyle, apothecary in Carlile, favoured us lately with a history of a case very like this: the part of the tibia, which was taken out, is seven inches long; the boy to whom it belonged, was twelve years old; the cure, which was almost entirely performed by nature, was two years

in being compleated ; and there is no inconveniency remaining, except that the patient cannot stretch the heel of the leg out of which the bone was taken, so well to the ground as he does the other.

*A history of a tibia taken out and regenerated ; by Mr. WILLIAM JOHNSON, surgeon in Kelso.*  
Vol. V. art. 40.

**A** Boy about eleven years old, was taken with a violent pain in his legs ; when I examined him, I found neither inflammation nor swelling ; I ordered him to drink a decoction of sarsaparilla, and rub his legs with warm cloths ; but this last he could not bear. Three days after a tumor appeared, reaching from the knee of each leg to the ancles. I made an incision into one, and discharged a fancies, and found the tibia carious, to which I applied tincture of myrrhe. The next day, I opened the other leg, which was in the same condition as the former, and dressed it in the like manner, ordering him to take the Peruvian bark, and the sarsaparilla with lime-water. In two months the whole tibia came out ; the leg was put in a proper box to keep it strait, and in two months it was entirely cured. The other tibia came away in pieces, and the ulcer was much flower in curing than the former. In six months the lad, from the beginning of his illness, was able to walk without crutches, and has continued well ever since.

*The history of a glans penis regenerated after amputation ; by Mr. J JAMIESON, surgeon.* Vol. V. art. 35.

**A** Young man came to me for advice in a gonorrhæa, which he had contracted some weeks before. I found the prepuce and glans mortified, and the body of the penis much inflamed, and in great danger of the same fate ; therefore I called in assistance. Upon cutting into the prepuce and glans, we found them quite sphacelated, and that nothing but

but amputation could save the patient's life; accordingly we cut off the præputium, glans, and part of the corpora cavernosa penis, and applied dry lint to the wound, with a proper bandage, bled him plentifully, and gave him an opiate, which procured him a good night's rest. The next day he was bled again, and an injection thrown up the penis, and at night he took his opiate. The third morning, his pulse being hard, he was again bled, and took the opiate as before. The fourth day we removed the dressings, and found the wound in a good condition, the digestion being begun. To correct the virulence of the running, small doses of calomel, with gentle purgatives, &c. were given, and the penis dressed as before. On the sixth day a fungus appeared, which we touched with the lunar caustic; the pain it occasioned was so violent, as to bring on a fever which lasted twenty-four hours, notwithstanding all our endeavours to suppress it. We tried a little red precipitate mixed with Arcæus's linament, but this was laid aside on account of the great pain it occasioned; and dry lint was the only dressing he could bear, which compleated the cure in the following manner. The fungus advancing, made us imagine that we should be obliged to make a second amputation; but, to our great surprize, we discovered a thin skin advancing upon it, which in a short time covered it; and what we took for a fungus, forms now a well-shaped and proportioned glans.

*Worms evacuated at an ulcer in the groin; by  
Mr. JAMES DOUGLAS, surgeon to general  
Sabine's regiment. Vol. I. art. 19.*

A Woman was seized with a violent fit of the cholick, attended with vomiting and costiveness, which lasted five days: at length, by the frequent use of clysters, she had several stools, which eased, in some measure, the pain of her bowels, but the reachings still continued. The eighth day, she vomited a worm a foot long, upon which the pain in her sto-

mach much abated, but the gripes were the same as before. She now told me of a tumor in her groin, which she had been afflicted with some time, but I was not permitted to see it. From the account she gave me, I judged it to be an hernia, and ordered proper applications accordingly. Four days after she suffered me to examine the swelling, which was much inflamed, and tending to suppuration. Her other complaints were removed by the following bolus : Rx. Æth. mineral. gr. xxiv. calomel, gr. iij. cons. ros. rub. q. s. m. f. bolus mane & pomerid. sumendus. Three days after I opened the tumor, and discharged a good deal of matter ; the common dressings were applied to the ulcer, and the T bandage over all. The inflammation and swelling about it soon disappeared, the matter lessened, and the ulcer was in a fair way of being soon cured. The twenty-third day she took the following purge. Rx. Infus. sen. 3ijj tinct. sacr. 3ij m. When coming to dress her, she shewed me a worm which she said came out of the ulcer ; I immediately passed in my probe, and found that it penetrated into the abdomen : upon this I applied proper dressings to keep the ulcer open for the evacuation of these creatures, another of which came out the same evening. On the twenty-sixth day the purge was repeated, with pulv. jallap. gr. viii. which produced three stools, and forced a fluid from the ulcer, much like what passed by the anus. The discharge of the ulcer decreasing, and no excrements passing that way, I endeavoured to cicatrize it, which was soon effected ; but about a month after, the cicatrice burst, and a thin part of the excrement flowed through it. In this condition it still remains, without hindering the patient from going about her usual business.

*The history of an ulcer in the leg; by Mr. ALEX.  
MONRO, professor of anatomy in the university  
of Edinburgh. Vol. IV. art. 21.*

A. S. aged thirty-six years, having wounded the fore part of his leg with the point of a hook in August 1732, an inflammation and suppuration came on, which were neglected till October, when, on examining his leg, a sinuous ulcer was discovered to extend itself the whole length, which being laid open, let out a small quantity of sanious ichor: In a few days after, the knee was attacked with a painful swelling, which yielded to a fomentation. Some days after this, spungy flesh rose from the ulcer, which was kept down by red precipitate. He drank plentifully the decoction of guiacum, and took several doses of mercurial purges, which had a good effect for some time, but upon interrupting the use of them, he felt a pain and stiffness in his knee, the matter of the ulcer grew more sanious, pimples broke out all round it, and the itch appeared all over his skin. The purgatives were repeated, and again brought the leg to a better condition, but left a diarrhæa, which continued some days. In the beginning of January, 1733, he was seized with a feverish paroxysm like that of an ague, and next day a red swelling of the erysipelas kind was observed on the back part of the leg near the ankle. Next day, the tumor of the leg was less, but his knee was considerably swelled, tho' without any heat or redness; his pulse was frequent with thirst, heat, and other feverish symptoms. A low vegetable diet was prescribed, and emollients applied to his knee. The feverish symptoms continued, the knee swelled more, and became more painful, and a suppuration began in the back part of his leg. These were soon followed by an obstinate diarrhæa; so that before the end of this month, he was emaciated and very weak, his appetite was lost, and he had constantly a quick pulse, and thirst, with night sweats

and a colliquative diarrhæa : his knee was greatly swelled, and its ligaments very weak ; a grating was felt on moving the patella from one side to the other, and a large collection of pus was made in the back part of the leg. Finding himself waste every day, on the first day of February he allowed the limb to be amputated. It was taken off four inches above the knee : when this joint was dissected, the cartilages were found eroded, and the bones carious. The diarrhæa ceased, and in twelve days after, all the other hectic symptoms were gone, his flesh and strength being considerably recovered. The cure went successfully on, except that on March sixteenth, a livid coloured spot was observed toward the posterior part of the wound, which having a pledgit dipp'd in brandy apply'd to it, could not be seen next dressing. April sixth, several granula of flesh which came out with small peduncles from the bone, threw out a considerable quantity of blood, and five more such hæmorrhagies happened in this month, which were always stopp'd by oil of turpentine. April the twelfth, a large livid fungus sprouted out from the cavity of the bone, and several other such from the fleshy parts of the wound. These were removed by a red hot iron and oil of turpentine. In the beginning of May he was free from the fungi and hæmorrhagies, and May the fifteenth a piece of the thigh-bone exfoliated. He was then cured of his itch, appeared to be every way in good health and vigour, with the bone covered, and all the wound cicatrized, except about the breadth of half a crown in the most prominent part where the bone was, on which a skin could not be brought ; and therefore an instrument for him to walk with was contrived, which supported the body without resting on the bone, the form of which is represented in plate XII. fig. 3, and 4. *A* is a box of wood made firm on the outside by two rings of iron *a a*, and covered within with a thick quilting of wool under chamois leather. *B* is the stick. A piece of strong bend-leather shaped as in fig. 4. is fixed to the box

box *A*, the two ends *CC*, being at a distance from each other, and having holes for passing the lace *D* through; the middle, long part *E* has a large piece of thick chamois *F* fixed to it. *GG* is a belt of buff, at one end of which is the buckle *H*, and the other end *I* is a strap with holes. *KL*, are two small straps coming from the lower edge of the belt *G*. *m n*, are two small buckles fastened to the bend-leather. The patient having the thigh of his breeches fitted to his stump, so that the prominent raw part, with the dressings upon it passes thro'; the stump is put thro' the bend-leather into the pyramidal box, which does not allow the raw parts to sink to its bottom; and the laced part *D* is brought to answer to the course of the large crural vessels on the inside of the thigh; then the lace is drawn so tight that the leather may gripe the thigh all round, by which the whole weight will not rest on the cicatrix of the stump on the sides of the box; but the teguments of the thigh all bear a share, while the tight lacing will have no bad effect in stopping the circulation, the larger vessels being free from any compression: *E* comes on the outside of the thigh as high as the great trochanter, and *F* covers the glutæi muscles, and being pliable, allows them and the joint to move easily. The belt *GG*, is then fastened round the loins, and the straps *KL*, are secured by the buckles *m n*, to support the instrument in the inside of the thigh. If the belt *GG*, does not support all well enough, a suspensory may be fastened to it. This history affords very strong marks of a sharp purulent matter reassumed into the blood; and from the success of this case, surgeons may be encouraged to undertake operations to patients with very unfavourable symptoms, when they can thereby take away a fomes purulentus, or any other cause on which the symptoms depend. There are several such other cases recorded in our infirmary; analogous to which I have seen people in much the same circumstances from very large ulcerated bleeding cancers, large internal abscesses of the liver, kidney, &c. who recovered daily after the amputation of the cancer, or opening the abscesses.

*An ulcer in the lungs piercing thro' the diaphragm into the liver; by Dr. EDWARD BARRY, physician at Cork in Ireland. Vol. I. art. 26.*

**A** Man, who ten weeks before had been seized with a peripneumony, attended with a pain in the lower part of his right side, which was not acute, but terminated in an abscess, and soon after broke, expectorated fetid pus; and by lying on the opposite side discharged it in great quantity. His body was emaciated by colliquative dejections, attended with a perpetual nausea. In less than a fortnight he died; and his body being opened, his lungs adhered strongly to the pleura, where he had a frequent pain, and to the diaphragm. A cavity full of pus lay immediately under the surface of the adhering part, and continued through the diaphragm about an inch deep into the gibbous part of the liver, which closely adhered to the diaphragm. The length of this sinus was six inches, its diameter in the liver three, but more narrow in the lungs. The rest of the lobe of the lungs was entirely sound.

*Ulcers from dracunculi; by ROBERT HUTCHESON and GEORGE FORBES, practisers of physic and surgery in the island of Bermuda. Vol. V. art. 75.*

**A** Boy lately brought from Guinea, about fifteen years of age, of a thin habit of body, complained, while on a voyage from Jamaica to this place, of sharp pain on the outside of the tibia, where there was hardness and swelling, and appearance of suppuration. We took eight ounces of blood, and purged him with manna and cream of tartar, rubbed the part with ointment of marshmallows, and gently rolled it up. He complained much of pain all that day, and was restless, dry and feverish all night. Next morning the tumor, &c. was increased; it was again embrocated

Fig. 3.

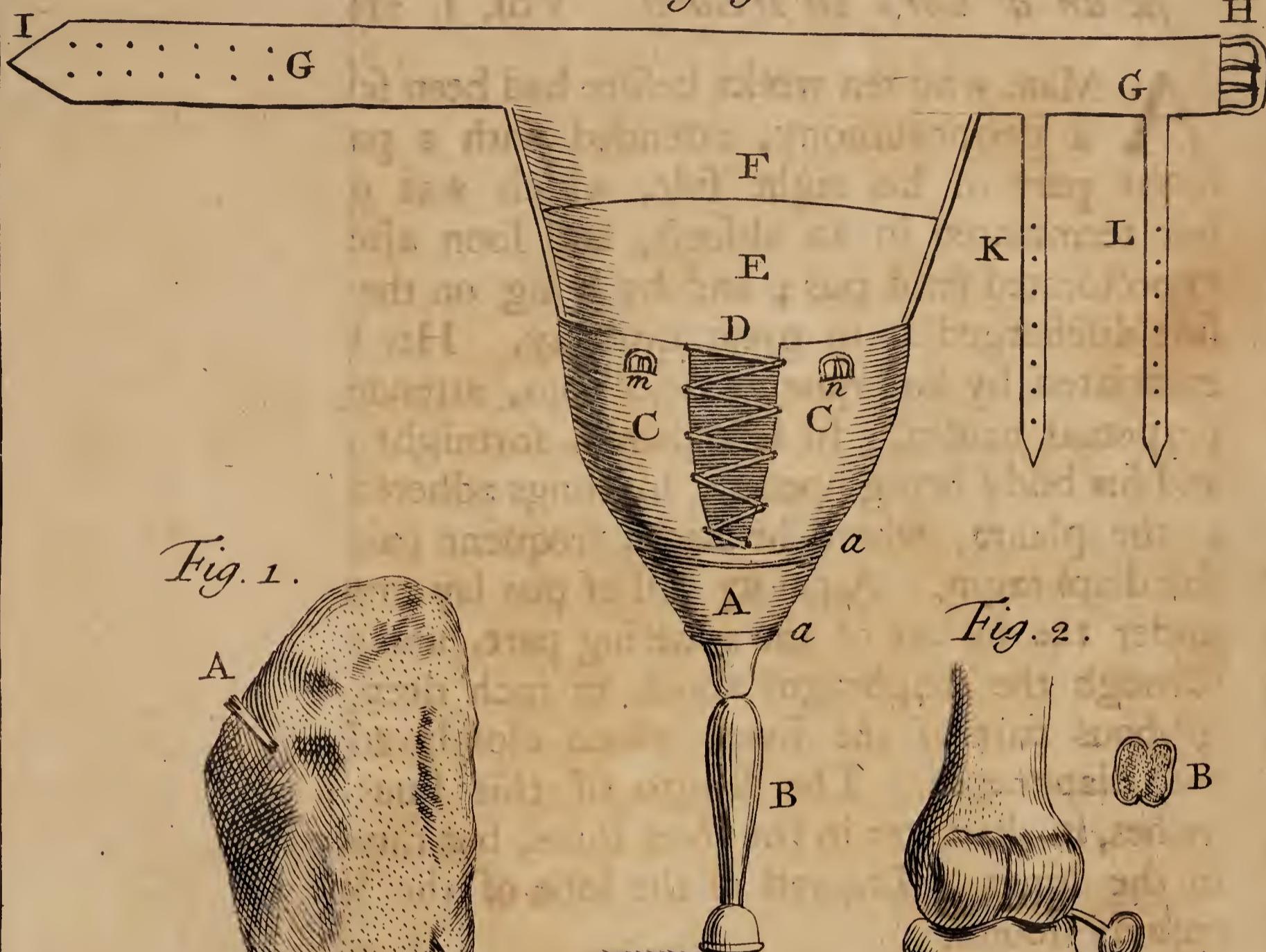


Fig. 1.

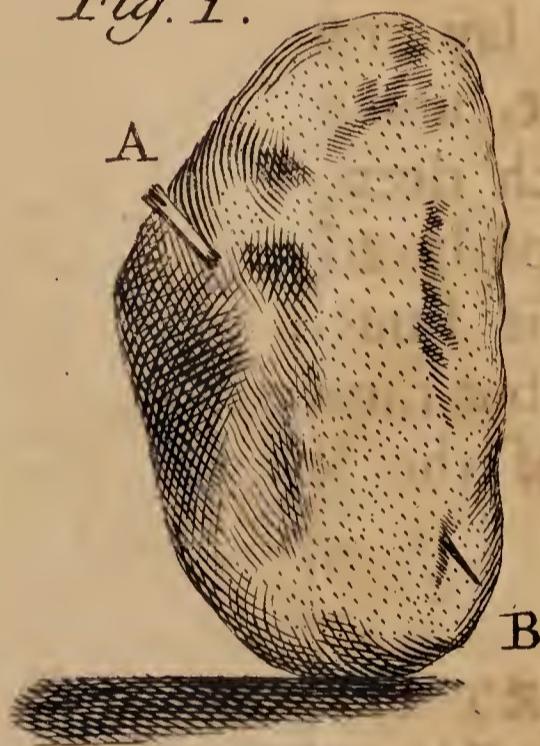


Fig. 2.

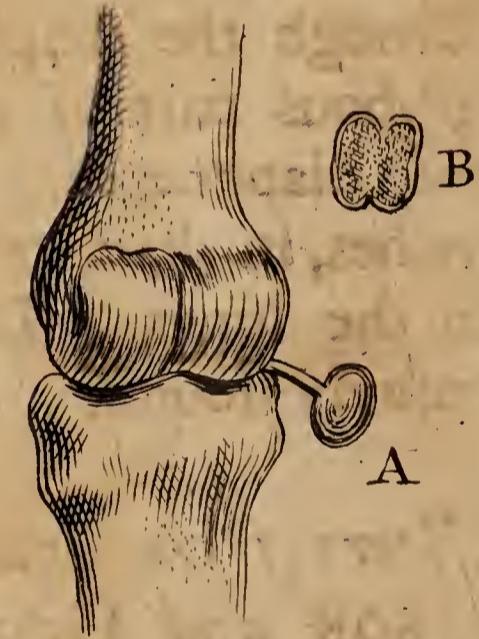
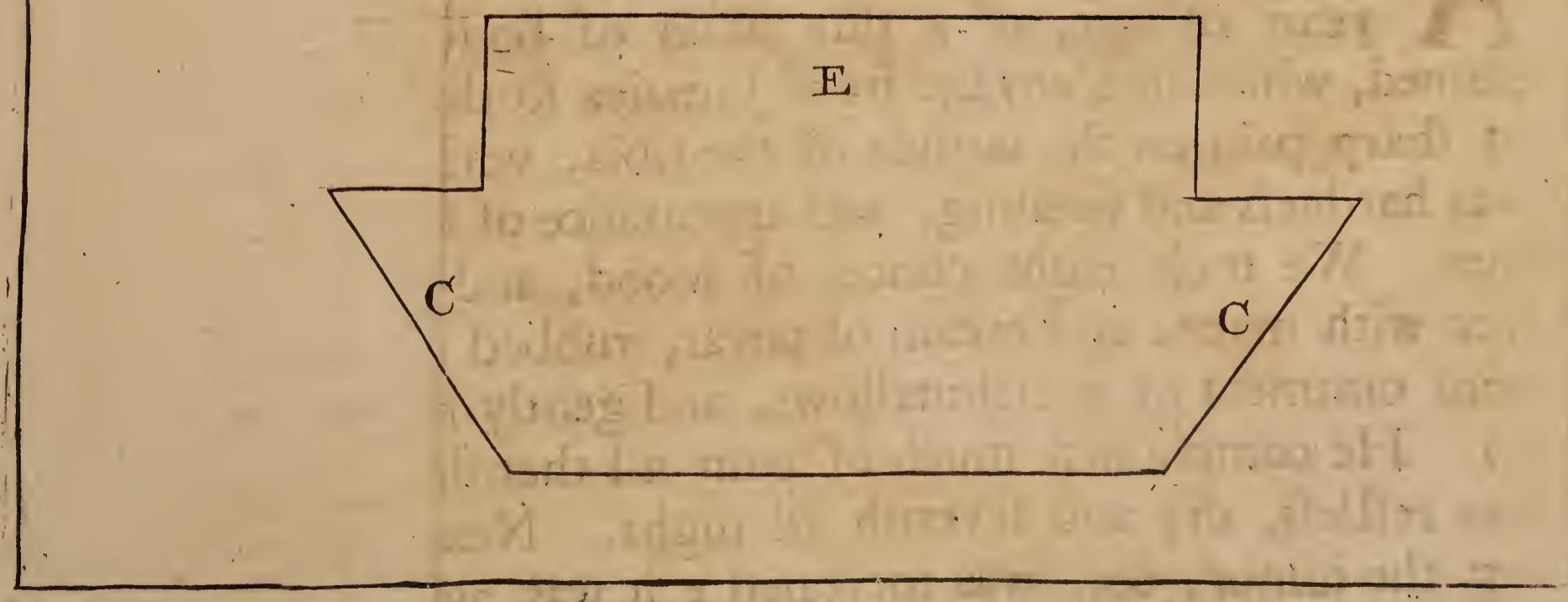


Fig. 4.





brocated with the ointment and a cataplasm of linseed and fænugreek and ointment of marshmallows applied. After dressing it thus two days, an incision two inches long was made into the teguments of the abscess, from which two spoonfuls of pus and blood were discharged. The sore was dressed with common digestive, with a pledgit of yellow basilicon and a plaster of diachylon with the gums over it. That night he was much more easy and slept: next day a substance, about the size of a probe, of a white colour, like a tendon, hung out from the superior part of the aperture. Upon gently drawing this substance, we extended it to three or four inches in length, rolled it upon a small pipe of lead, and secured it with a thread. Next day we drew out eight inches more, and put in a sponge-tent to prevent the contraction of the lips of the sore. At the third dressing the boy complained of his toes, and the metatarsus was swelled. This tumor was treated as the former; upon opening, a black ichor, mixed with blood only, was discharged, and the leg became œdematosus. We met at the same time with rough cold weather, which affected the boy much, and a mortification seemed to threaten the leg. We fomented it well, put a cloth wet in spirit of wine over, and rolled it from the toe to the ham. The fomentations were repeated in the evening, and some watery blisters being observed round the orifice in the foot, with a livid colour of its lips, it was scarified all round, dressed with warm oil of turpentine, the cloth with spirits and bandage put on it, and a cordial given. Next morning, the sore looked fresher, the scarifications began to digest, and the extremity of another dracunculus was discovered, but so firmly fixed, that one durst not venture to draw out any of it, but tied a thread round it. The boy was put on a strict regimen of diet, laxatives were given sometimes, and the former dressings continued. The digestion going well on, the extraction of the worms became easier; of the one in the leg we had three yards and a half, but after bringing out six inches of that in the foot, it broke and disappeared; swelling and pain immediately

immediately came on, and next dressing there were tumefactions at the end of the fibula on the first joint of the great toe, and two on the muscular part of the leg. They were all treated in the same way as the first, and in eight weeks thirty yards of the dracunculus were extracted from the different ulcers ; after which the ulcer healed and cicatrised easily. We however gave our patient a course of æthiops mineral, with gentle purgatives now and then, by which management he became a strong jolly lad.

*A tumor in the œsophagus from a singular cause ;  
by Dr. GILBERT WAUGH, physician at Kirk-leathem in Yorkshire. Vol. I. art. 27.*

— **H**ART, a girl about seventeen years old, tho' lean, appeared to be in good health, and cheerful. On attempting to drink, she was seized with violent convulsions, and at last fell to the ground as dead. In about half a quarter of an hour she began to speak, complaining of an intolerable pain in her breast, and anxiety which she could not express, and with her finger pointed to the part affected, which was under the upper part of the sternum, where it is joined with the clavicles. I could discover no signs of inflammation or tumor there. For the two last months she had taken no food, even the most slippery, without suffering fits of the same nature ; of late they had grown worse. Before these two last months, she was afflicted with a violent quinsy, accompanied with a high fever ; the swelling about her throat suddenly disappeared, and she was relieved in a great measure, but was sensible of a painful weight at the place she had pointed to before, and from that time deglutition was impeded. A mild vulnerary decoction was ordered her for drink, and an emollient fomentation for the part affected. In less than three days the tumor broke, and the girl was almost suffocated with the stench and quantity of the purulent matter, which was vomited up by drinking

ing a large quantity of warm water ; and she is now quite well.

*A tumor in the œsophagus hindering deglutition almost entirely ; by Dr. FRANCIS PRINGLE, late president of the college of physicians at Edinburgh. Vol. II. art. 23.*

**A** Gentleman of a robust constitution, and in the flower of his age, after hard drinking, was seized, in the month of May, with a throwing up of every thing he eat or drank, almost before it entered his stomach, and that without pain, violent reacings, previous sickness or nausea. This symptom eluded the force of great variety of medicines. The disease continuing, was soon attended with a daily and gradual decay of strength and flesh, and a constant chillness, even during the summer season, till at last he was brought into a perfect marasmus and atrophy, in which condition he died in October following. His body being opened, there was a hard glandular excrecence in the œsophagus, continued from the middle of this canal to the stomach, filling the whole cavity so much, that a probe could scarce be admitted.

*Difficulty of swallowing, loss of appetite, &c. from ichirrous tumors in the œsophagus and stomach ; by Dr. JOHN TAYLOR, fellow of the college of physicians at Edinburgh.*

**T**Hirty-four years of age, of a slender habit but healthy constitution, was attacked at times for a year together with a pain under the xiphoid cartilage. After this being irregular in his diet, for some time, he lost his appetite and digestion. For this he took a powder of steel, ginger, and pepper three or four weeks ; but the symptoms growing worse every day, and his body wasting considerably, about the end of November he applied to me. His flesh,

flesh, strength and colour were decayed, and for the most part he had great difficulty in swallowing any solid food ; for after it had passed easily to the mouth of the stomach, it met with great resistance, and gave him much pain before it got further down ; frequently it was squeezed back again, and sometimes it passed into his stomach without any impediment, from whence likewise he was soon obliged to throw up his victuals with a great deal of phlegm. He swallowed however liquid or thin food, provided he did it slowly, without much trouble, and retained it. He complained also of a constant stricture cross the lower part of the epigastric region ; there was no tumor on the part, nor any external pain, nor had he received any sensible hurt on it. His pulse was full and good ; he was not thirsty, nor had he any sweats ; his urine was in a natural quantity but crude. He was generally costive, and troubled with wind in his bowels, with flatuses. Large doses of ipecacuanha both in infusion and in substance, assisted with carduus tea, had no effect ; but the tinctura sacra, and compound tincture of rhubarb, answered very well. He took likewise pills made of the soft gums, rhubarb and extract of chamomile flowers, in an antihysteric julep. By the use of these medicines, and the bitter infusion, with a nourishing diet, and proper exercise, his appetite and digestion soon mended. Soon after some soap was added to the pills, and likewise some steel ; some compound-waters were added to the julep, with some asafœtidâ, and the antihysteric plaster applied to the epigastric region ; by which means he recovered his appetite, flesh, strength, and colour, and the stricture became easier ; but still the complaints in swallowing remained, as well as the spouting up his food with great quantities of phlegm. To remove this, I gave him oxymel of squills, and afterwards ten drams of emetic wine, which procured only some weak attempts to vomit, but brought up nothing. Towards the end of December, he was seized with a nephritis, attended with a total suppression of urine ; which kept him

him five days in a miserable condition, notwithstanding proper evacuations, bathings, &c. till at last he passed a stone which had come down from the right kidney. This shock left him much weaker, and made all his complaints worse ; he could bear no solid food, and his medicines were all thrown back, except a medicated ale. After this he began taking some flowers of sulphur in milk every morning, and renewed the gum pills, with soap and balsam of Peru ; these were continued till February without any relief ; about which time, he observed that if he eat bread with any liquors, he threw all up ; but if he first eat the bread, and some while after drank the liquors, he retained them both. Next, riding was prescribed, æthiops mineral ordered, and a decoction of the pareira brava, with some tincture of steel, in rhenish wine. These he took a considerable time, but the symptoms grew worse, his body wasted apace, and his pulse became quicker. About the middle of March he began to have morning sweats, without any cough or gross spitting ; soon after, as he was walking, he brought up two polypus-like substances, resembling in figure and bulk a pistachio nut, only they were about a third longer. On their coming away, he felt a sharp pain in his breast, which continued four days, he taking in the mean time lime-water in milk, and a mild healing electuary. In a fortnight after he brought up a third substance, like the two former, but without any pain, neither did he evacuate any thing bloody at either time. After this he had no more night sweats. His medicines were continued, and a milk diet with moderate exercise recommended. After the middle of April, veal, pigeons, and the like, agreed better with him than thin food. In the begining of May he underwent a gentle short fit of the nephritis in the right kidney, and then began to be sensible of a hardness in the left hypochondre, which he always complained of from that time. Soon after, a diarrhæa, with whitish stools, came on ; he decayed fast, and died before the middle

middle of June. His body was opened, and the lower edge of the omentum, which was very short, was grown to the peritonæum from the one side to the other of the lower part of the epigastric region. The omentum was thin, but hard and firm at this place, and adhered to the intestines in several parts, being every where schirrous, and vastly thick where it stuck to the liver, spleen, and stomach, the two former being firmly connected to the last by it ; there were many little abscesses in its substance. The surface of the liver, spleen, and stomach, had small white tubercles scattered over them ; its dorsum adhered every where to the diaphragm, by means of a hard steatomatous or schirrous substance, like that of the omentum. The intestines seemed a little inflamed in some places, and were grown more than usual to the peritonæum. There was no stone in either of the kidneys or bladder : All the other viscera of the abdomen were found. When the thorax was laid open, some bloody water was taken out of each cavity. The lungs appeared sound, only the inferior lobe of the left side adhered firmly to the diaphragm, where was discovered an abscess containing some pus, and a viscous brown fluid. The cavity in the lungs was not larger than to receive two ounces of liquor, but from that the abscess penetrated thro' the diaphragm and coats of the contiguous stomach into its cavity, the perforation in the diaphragm and stomach, hung large enough to allow one's thumb to pass. The œsophagus was found till within two inches of the diaphragm, when it degenerated into a white schirrrous substance, in which were many small suppurations, each of which opened into this canal. The superior orifice and substance of the stomach, for some inches below, were much in the same condition ; so that the par vagum being here compressed, this bowel might probably have been rendered so insensible, as not to be moved by the strong emetics which had been given. The glands at the divisions of the trachæa arteria, were stuffed with a spongy stony

stony substance, inclosed in a firm black membrane. All the other parts were in a natural state.

*Remarks on the amputations of the larger extremities; by ALEXANDER MONRO, P.A.  
Vol. IV. art. 22.*

THIS operation consists in a proper precaution to prevent any hæmorrhagy; cutting all the soft parts which cover the bone or bones; sawing it or them through; securing the cut vessels from bleeding afterwards, and dressing so as to promote a safe and easy cure. In this order I shall make my remarks. The precaution taken to prevent a hæmorrhagy during the operation, is by applying Petit's or the common tourniquet. I shall refer to what Mr. Petit (a) says of the advantages of his, and only consider the common one. It consists of a thick substance to be placed on the large common artery of the member, for compressing it, a circular compress to be put round the limb, to defend the teguments; a strap which is to be twisted; a stick to twist it; and a piece of paste-board or horn to allow the twisting to be made more easily, and to defend the teguments from being hurt by it. A thick compress, or a roller, which is much preferable to it, is to be placed over the artery for its compression. The size of this roller must be proportioned to the distance between the muscles, and to the depth of the situation of the artery. If the roller is too thick, it will be born off by the artery from the muscles; and if it is too small, the muscles will hinder the ligature pressing sufficiently on the artery. The roller should likewise be of a due firmness, to retain its cylindrical form, till a considerable force is apply'd to make it a little flat. It ought always to be applied first upon the artery, and then the circular compress is to be drawn tight over both roller and member. The roller and compress ought to be sowed together, and the ends of the com-

(a) *Memoires de l'acad. des sciences, 1718.*

press so secured that it may not fall off. Care is to be taken that the strap is strong enough, and no way worn, lest it break : if such an accident should happen an assistant may supply the want of the tourniquet, by gripping the roller firmly, till either a new strap is provided, or rather till the surgeon has finished the operation. Nay tho' there is no such assistant, the surgeon, by sawing the bone thro' quickly, and then putting his fingers on the large arteries, till he has brought the stitches round them with the other hand, may prevent too great a loss of blood. In cutting the soft parts which cover the bones, care should be taken to have the skin and bone as equal with the surface of the wound in the muscles as possible ; for if the skin is strained much in the circumference of the wound, and the bone juts out far in the middle, a tedious cure is to be expected. For this purpose, the skin is not only to be drawn firmly up, while the fillet, which is to be put immediately above where this circular incision is to be made, is applied tightly ; but the assistant who holds the upper extremity of the member, is to draw the skin, and, if he can, the muscles too, as tightly as possible, both to save them, and to keep them tense, by which they cut much more easily. And the operator is not only previously to cut the skin round, and then to make the circular incision in the muscles close by its upper cut edge in the thigh, and other places where a strong retraction of the soft parts is expected ; but after cutting the periosteum round as near to the flesh as possible, he is to scrape it upwards with the edge of his knife, by which the side of the blade must push upwards the muscles which are next to the bone ; so that the bone being sawed near to the flesh, the whole surface of the stump may be plain, without any prominence in the middle ; which not only protracts the cure, but is a great inconvenience to the patient ever after. Before the saw is to be applied, a piece of slit linnen is always ordered to be put round the bone ; but this is not wanted, and is greatly inconvenient. To secure

the cut vessels from bleeding, the common practice is to stitch the vessels; for styptics are found altogether insufficient in such amputations as I now treat of. Caustics are both uncertain, and destroy more than is necessary. Compression by common bandages cannot restrain the hæmorrhagy. The stitching then is only what I shall consider. The form of the needles employed here, and the way of making a thin flat ribband, by waxing a number of thin small threads together, for tying the vessels, instead of the common round thread formerly used, are now too well known to be insisted on. In pushing the needle round the artery, the surgeon should be careful to carry it within the substance he pierces, three fourths of the circumference of the artery; for if the thread is only lodged within the flesh of one half, or less of that circumference, the artery may be missed altogether in drawing the ligature, or such a small part of one side of the extremity of the artery may be taken into the noose of the knot, as will easily slide off; and tho' the bleeding appears sufficiently guarded against at first, yet a fresh hæmorrhagy begins soon after. As few muscular fibres, tendons, or ligaments, ought to be taken within the noose as possible. I have seen many inconveniences arise from not attending duly to this circumstance; the surgeon should attempt to thrust his needle only thro' the cellular substance in which the arteries of the extremities lie; for as soon as the ligature is made, the cellular substance beyond the stitch, having still a communication with the surrounding cells, swells and turns firmer and harder, so as to prevent the thread from sliding. Where the artery is very large, and consequently where the plug of coagulated blood obstructing its orifice, the firm concretion of its sides, the new sprouting flesh, or what ever else it is that blocks up the orifice, is longer in forming, the ligature should not be drawn so tight, that its separation may be longer in making, and all hazard of hæmorrhagy shunned. But where the artery is not large, the tighter the threads are drawn, so

much the better, that they may sooner fall off, and the cure may be more speedy. After the two knots are made on the ligatures of the vessels, the threads should be cut so short, that they can scarce reach to the edge of the wound: by this means they are always kept moist, and so cannot adhere to the dressings, to run the risk of being pulled off with them. The surgeon ought not to content himself with tying only such vessels as he observes throwing out blood while the patient is faint, but he should rouse him by a cordial, and then wiping off the blood with a sponge wet in warm water, examine narrowly all the surface of the stump, to discover the bubbling streams, to secure them before the dressings are put on, otherwise he may expect to be obliged by a fresh hæmorrhagy to undo all. At the first dressing, if the larger vessels are well tied, and no fault is committed in applying the other dressings, there is occasion for no other application to the wound, than the threads of soft half-worn linnen, called lint, which is easy to the wound, and by the corrupting liquors it imbibes, proves one of the strongest, most mild and safe suppurations. The lint needs only to be laid in thin parcels, as is done when pledgits are to be made; with these the inequalities between bones or else where can be perfectly filled up, and an equal soft compression made on the whole surface of any broad wound or ulcer. This way of dressing makes compresses and particular pledgits for the bones altogether unnecessary. The malta compress is well contrived, but the two long ones, which are ordered to be applied across the stump upon the malta, seem unnecessary, if not hurtful; for they press only the bone, and hinder the equal compression of the bandage on the other parts of the wound. It will be sufficient to place a narrow thick compress on the course of the large artery, to moderate the course of the blood in it; or rather this may be done by crossing the extremities of the circular compress, which is put round the member upon the artery. Too tight application of the bandage on the

other

other dressings, is hurtful, as I shall endeavour to demonstrate, in considering the effects of the different turns of the amputation-bandage applied tightly. The longitudinal turns of the bandage, which are made to pass over the middle of the stump in different directions, to cover it all over, exert their greatest power against that middle part where the bone is, which bears off their pressure from the other parts; and the large arteries, which shrink up farther than the extremity of the bone, cannot be affected by their pressure. If this middle part is shunned in making the longitudinal turns, the flesh only is pressed, and therefore will be thrust upwards from the bone, leaving it prominent and bare, and causing a tedious cure, and at last a pyramidal stump. The immediate effect of too great pressure on the soft parts, is the hinderance of the small vessels from discharging themselves, which creates pain and inflammation, and does not allow the suppuration to come on. I have seen this confirmed in one who had his arm amputated; the ligature being too tight, there was no appearance of ichor, nor any smell of a suppuration; the pulse became quick, and pain and throbbing was felt in the stump. I judged what was the cause, and cut all the longitudinal turns at the elbow: in a few hours after the pain was gone, the dressings were stained in the liquor ouzing thro' them; next day all the symptoms of a mild plentiful suppuration were seen, and the cure was soon completed. The circular turns of the bandage when tight, must stop the return of the blood in the cutaneous veins, and by making thus a greater resistance to the blood in the arteries which anastomose with them, occasion the contracting power of the heart and arteries to dilate, and force more blood into their other branches; but these being cut in the amputation, will pour out their blood, and so an haemorrhagy is brought on. Analogous to this, when a ligature is put round the arm or leg, it becomes all red below, the lateral branches having much more blood thrown there into them, than they had when the

circulation was free. To this cause it is owing, that after dressing a wound it bleeds ; upon taking off all the dressings, not a drop comes out ; a tighter bandage makes the hæmorrhagy greater. From the whole, I would conclude, that no more is required of the bandage, than to press the other dressings very gently to the wound. It is by no means a general rule, that all who suffer amputations should be let blood either before or after the operation ; for I have, in many instances, seen the cure performed without one bad accident, when the patient has scarce lost two ounces of blood in the operation, and was neither blooded before nor after it : and, on the contrary, I have observed people sink under the loss of blood, dying with œdematosus swellings in several parts. The cases in which blood-letting is required after amputation, are, when the patient is of a full habit of body, and has lost little blood before, or in the time of the amputation ; or when there is violent pain and swelling in the member, without being occasioned by any application made to the stump ; or when the pulse becomes very quick and strong, with heat, thirst, and other feverish symptoms. But if in the first three or four days after the operation, the pulse is only a little more frequent than ordinary, without violent pain, or other bad symptom, a low diet, with cooling drinks, and laxative clysters if the patient is costive, will be sufficient. It is generally too soon to take off the first dressings on the second, third, or even fourth day after an amputation, for they still adhere to the wound, and cannot be brought away without pain and bleeding : and there being no such effectual suppurative as the liquor sent out from the wound, the fifth, sixth, or seventh day is generally soon enough for removing the dressings. If the smell of the ichor of the wound becomes in the mean time offensive to the patient, it may be necessary to cut the band, and with the assistance of scissars to take off the compresses and exterior part of the lint on the third or fourth day, and to apply clean things in their

their place; but the lint next to the wound ought not to be removed till the suppuration moistens and separates it. At the second dressing there is no occasion for any other suppurant, than not to be too anxious in cleaning off the pus which adheres to the stump, all moisture upon the skin being carefully dried, to prevent excoriation. Nothing contributes afterwards more to a speedy cure, than dressing seldom. The rule that might be taken from nature, is to wait till the patient is sensible of an uneasy itching in the wound, which shews the pus is beginning to turn acrid, and commonly happens every second or third day. I hinted formerly, that an equal gentle compression is of great use in keeping up a right suppuration, and preventing the growth of spongy flesh. If the threads with which the arteries were tied, should remain too long, that is, three weeks or a month, according to the largeness of the artery, and the new-sprouting flesh covering the ligatures, they had best be cut out, lest by the growing of the flesh they should become so much covered, as scarce to be come at, and sinuous ulcers should be formed, to prevent a cure. The best method of making this excision, is to take hold of the depending threads, and to introduce a probe or small direcory along them, till it enters the noose, which is easily known by drawing the noose very cautiously outwards with them; for the resistance which the thread makes will plainly be felt. Upon the dircitory slide in one blade of a pair of scissars a little opened, till the point of it is where the other instrument was, and the point of the other blade is consequently on the outside of the noose when it is to be snip'd in two, and drawn out. In taking the threads away in this cautious manner, there is no danger of bringing on a hæmorrhagy from the artery round which the thread had been tied; for long before this time, so much of what was taken at first into the noose must have fallen off, to make it quite loose, and without any effect upon the artery. If the patient is of a tolerable habit of body, and is

managed in the manner above described, dry lint, and sometimes touching the sprouting flesh with lunar caustic, are all the medicines necessary towards a compleat cure, without any exfoliation of the bone, which the surgeon ought to be so far from endeavouring to promote, unless the bone is corrupted by some accident or mismanagement, that, on the contrary, it should be his study how to prevent it.

*An essay on the caries of bones; by the same.*  
Vol. V. art. 2.

**A**UTHORS in general have little considered the circumstances of this disease, and follow an odd and contradictory medley of practice. To reform this, it will be necessary to examine accurately the appearances of this disorder. Previous to any account of the caries, it should be remarked, that bones have their vessels and circulating fluids, and in short the same general texture which other parts have; solidity and the stronger cohesion of parts are the only evident distinguishing characters of the composition of bones. Of this truth there are many proofs, such as, 1. Bones are in the state of membranes and cartilages before they ossify. 2. The hardest bones have changed back again into a soft state. 3. The granulated flesh which rises out from bones after fractures, amputations, the trepan, or in exfoliation, differs nothing from what would come from any soft part, yet in several cases becomes sound solid bone. 4. When the bones are artfully unravelled, and compared with the softer parts, the texture appears alike in each. 5. By a chemical analysis, the same principles are obtained from bones as from other parts. 6. By comparing the diseases of bones with similar ones in softer parts, as I shall do in considering the different species of caries, the general proposition of bones differing only in solidity and cohesion of parts from the other softer organs of the body, will be confirmed. The species of caries which

I have seen, are, I. What Mr. Petit (a) calls the dry caries, where the bone is pretty smooth and firm, and throws out little matter; tho' the surface of the carious part, in this species, is not of a dark colour at first, yet before exfoliation it becomes of a dark-brown, or black colour. An exfoliation is more easily obtained here, than in any other kind. Before the corrupted part can otherwise be observed to separate, one may hear, as Severinus (b) remarks, a shrill sound when it is struck, as if it was hollow: soon after this, the edges of the carious part rise a little, and pus, or, if it is pressed, blood comes out below them; granulated flesh then appears at these edges, the bone is more raised gradually towards the middle, till all the carious part is separated from the new sprouting flesh, which rises upon the whole surface of the bone below, and seems to push off the carious squama, so that it becomes loose, and can be taken away without any violence; the ulcer is then in a fair way of curing; and tho' a considerable thickness of bone has come away, yet, in some time after, little depression is to be felt, the new flesh having gradually become harder, till it supplies, in a good measure, what was taken away. Whoever has seen the separation of a gangrened piece of skin, or of the eschar of a caustic, where a fissure first appears in the margin of the mortified part, pus begins to ouze out, the division between the sound and mortified part becomes larger, new flesh rises, the separation goes on from the circumference to the center, till the mortified part drops off, and new flesh supplies its place: whoever, I say, has seen this, and compares it with the phænomena of the dry caries, will judge, allowance being made for the rigidity of the bony fibres, which cannot contract as those of the skin do; that the appearances are the same in both cases; therefore I call this state of the bones described above, the gangrenous state.

II. The second kind of this disease, is Petit's worm-eaten caries, in which the cavernulous texture is evi-

(a) *Maladies des os.* (b) *De efficac. chirurg.* part ii. cap. 11.

dent ; this has not such a dark colour as the former, the quantity of matter sent out from the cells of the bones is greater, and vastly increases, when the sanies comes out from the marrow in the cancelli. Pieces of the rotten bone may be broken off here, or fall away, but no regular exfoliation is to be expected, unless it is reduced to the former species. The gradual wasting of the bony fibres by the suppuration, is often very remarkable in this caries. The worm-eaten caries, where the substance of the bone only is affected, may be compared to an ulcer of the soft parts, which has a number of little sinuses ; drops of matter may be seen drilling out from the numerous orifices of the small caverns in its sides. When the sanies comes from the corrupted marrow in the cancelli, the disease is analogous to an abscess, the matter of which has eroded a number of small holes in the skin. III. Frequently a spongy, bleeding, fleshy substance, rises in all the little caverns of the worm-eaten caries, when it may be called carious, and is similar to ulcers with hyperfarcosis. IV. As the soft parts are dissolved down into a mucinous substance, which destroys their original form and texture in the white swellings, as they are called ; so in this disease, and some others, the periosteum becomes thicker, the bone turns softer, its surface is eroded, a yellow-red spongy substance sprouts out, and, proceeding deeper, wastes the bony fibres. The difference of the appearance of this kind from the carious, is, that in the carious the spongy flesh grows out of the caverns, while the grey or brown-coloured spongy bony sides of them still remain ; whereas in the other the bony fibres disappear wherever the spongy flesh comes. Upon scraping away this bone-consuming flesh, the surface of the bone appears rough, but not much eroded, or greatly altered in its colour. I have seen some ulcers in soft parts where such a consuming spongy flesh rose. V. Frequently upon opening an abscess, one shall see at the bottom of it a white smooth bone, without its periosteum, or any connexion to the neighbouring parts, except by the ligaments at its extremities. From the consequence of

the bone's changing its colour gradually as it continues exposed to the air, and the necessity of its coming all away before any cure can be made of the ulcer, it appears, that there is no circulation of liquors in such bones before the abscess is opened. This way of bones mortifying, happens most commonly in scrophulous patients, in whom something analogous to this is likewise often to be observed in the glands, round which a slow suppuration is made, which leaves them almost entirely separated from the surrounding parts.

VI. In one species of exostosis, the tumified part of the bone is softer than the rest; and is not composed of regular fibres, nor cavernous, but as if the ossifying juice had been thrown out irregularly; over which a cartilaginous or tendinous substance is spread; and from this firm, shining, smooth flesh grows out, which, after the teguments are removed, sends forth a thin, stinking, acrid fancies; the patient complains often of throbbing pains in it, and sometimes considerable hæmorrhages are made, from imperceptible vessels in its surface. May not this be compared to ulcerated cancers of glands? VII. In the spreading eating cancers, the bones are wasted as well as the soft parts, and the appearances are the same in both, unless that the bones do not consume quite so fast. In treating a caries, every circumstance should be examined, and the cause found out, if possible, that it may be removed; but I shall confine myself to the topical management of the caries, without any regard to the habit of the patient, or to any other disease. A speedy and safe separation of all the corrupted part, is the principal indication to be pursued; for executing which, many means have been proposed. To know which of these are preferable in different cases, it will be necessary to consider the evident operation and effects of the several medicines, which may be reduced to the following classes: 1. The insipid terrestrious absorbents, such as coral, &c. put into an ulcer where a bone is carious, can have little other effect than to imbibe the matter of the ulcer; if they fall into any cavernæ

cavernulæ of the corrupted bone, they may remain so long there, as that the matter they imbibe may become acrid. Lint is an absorbent which has not this disadvantage. 2. The powders which have aromatic or other acrid particles in them, not only absorb liquors, but give more or less stimulus ; and as the effect of all irritation is some degree of inflammation, which in sores is principally removed by a subsequent increased suppuration, these powders may assist to separate corrupted from sound parts. Such of them, as have balsamic particles in their composition, encourage the suppuration most : several of them resist the putrefaction of animal substances, and therefore may preserve a carious bone, or the matter coming from it, from such a high degree of putrefaction as they might otherwise go to. Besides these effects on the sore, regard must always be had to their operation, if any of their particles are absorbed by the blood-vessels ; for some of them produce more or less of fever, others become purgatives, &c. 3. Ardent spirits can be introduced further than powders can ; they stimulate sores, resist putrefaction, harden the fibres, coagulate the liquors, hinder suppuration, and quicken the pulse when absorbed. 4. The tinctures of the powders N° 2, in the spirits N° 3, partake of the nature of both, but principally of the spirit. 5. Essential oils stimulate, erode, resist putrefaction, and, mixed with the blood, raise some degree of fever. 6. Expressed oils, balsams, resins, relax, increase the putrefaction, and are the most effectual suppurants and incarners. 7. Water relaxes the solids, and dilutes the fluids, when nearly of the same heat with animals. 8. Vinegar stimulates and resists putrefaction ; when weak, enjoys also the virtues of water ; when strong, approaches to the following class. 9. The natural salts have different degrees of pungency, and proportionally stimulate or erode ; otherwise they preserve animal substances from putrefaction. 10. Acid spirits extracted from fossils, coagulate the liquids, and mortify the solids ; by being diluted with water, they approach

approach to vinegar. 11. By dissolving metallic substances in these spirits, generally their corroding sphaelating power is increased, and some of them give such pain, as to bring on convulsions. 12. Metallic bodies, corroded by acids, generally erode when applied to sores: some of these, for example sublimate mercury, and particularly arsenic, have shaken the whole frame of the body when applied externally; and the mercurial preparations do sometimes enter the blood, and produce a salivation. 13. Alcaline salts and spirits stimulate, erode, and increase putrefaction; when absorbed, as the volatile ones readily are, they quicken the pulse. The eroding power of these salts is greatly increased in their preparations with quicklime, as in the common caustic; these act with less pain than what acids, or their preparations with metals, give. 14. All bodies heated beyond a certain degree, and applied to our bodies, give us pain, stimulate, and inflame; when greatly heated, they mortify whatever part they touch. 15. The effects of rasping, cutting, trepanning bones, are evident: 16. In every wound or ulcer, the matter discharged into it, must be the most constant application to the sides of the sore: when this matter is laudable mild pus, it is one of the most powerful digesters, suppurants, and incarners; when it stagnates too long, or when the liquors or vessels are faulty, it may become an acrid, stimulating, eroding fancies; when absorbed into the blood, it infects all the liquors, stimulates the vessels, and is capable of producing violent disorders.

*Of the dry or gangrenous caries.*

When the dark colour, and dry surface of a carious piece of bone shew it to be fully mortified, especially if the shrill sound and rising edges of it, with pus coming out below them, discover the exfoliation to be begun, nature of herself, or with little assistance, will make the cure. If the pus is mild, and in due quantity, it will prove the best suppurant and incarner for

for making the new flesh thrust off the carious piece of bone, care only being taken not to remove it too frequently, nor to allow it to remain so long as to become too acrid. If the quantity of pus is too little, it is to be supplied by the medicines whose effects are nearest to it, so that those of the sixth class are proper. While the exfoliation is making, the opening in the teguments is large enough, if the pus is so evacuated that it neither forms sinuous ulcers, nor is absorbed to taint the blood; for otherwise it hastens the separation of the carious part of the bone more by being collected upon it, than when it has a free exit. If, by the orifice being small, either of these bad consequences happens, it ought to be enlarged, either by prepared sponge, the knife, or caustic; and it may be kept open, by filling the sore with soft dossils, and pressing them in gently with a proper bandage. When the colour of part of a bone is considerably altered from what it should be in a sound state, but is not so dark as to be judged entirely mortised, while there are no signs of its separation, it proves a very tedious task to trust the exfoliation only to nature; and therefore, after laying all the altered part of it bare, if it can be done by the methods proposed in the preceding supposition, the surgeon ought to try with the perforative, or with the rasper, how deep the disease goes. If it is only superficial, a compleat mortification is to be made, by applying a red-hot iron, or the potential cautery; after which, the case and its management is the same as has been mentioned. If the alteration in the bone is deeper than the action of the iron or caustic can reach, all that is suspicious may be cut off with a sharp instrument struck with a mallet, which gives but little shock to the member; after which the sprouting of granulated flesh is to be promoted, without which no cure is made, but the surface anew alters its colour, and corrupts. No medicines so effectually prevent the corruption of bones laid bare, and assist to cover them so soon with flesh, as ointments, balsams, and dressing seldom, to have  
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the assistance of the most effectual balsam of all, pus. With these we see the extremities of amputated bones covered over with flesh, parts of the skull, tibia, and other solid bones, covered in a little time with granulated flesh, after they had been laid quite bare by wounds made even with bruising instruments, and likewise after their carious surface had been cut off, and a compleat cure made without the least exfoliation. If, notwithstanding our endeavours to make flesh rise from the surface of a sound bone laid bare, or of one which has had its mortified surface cut off, we cannot obtain this wished for incarnation, and the surface of the bone shews that it is beginning to corrupt by a change of colour, it must be treated as a superficial caries, and compleatly mortified. When the carious part of a bone is too thick for being separated either by the rasper or chizzel, it is to be taken out with the exfoliating trepan, or by making a great many holes in the circumference of the caries; and then cutting the bridges between them through, the middle of it is to be raised or cut off, after which the management is the same as in the preceding case. If there is not space enough in the sore to apply right the instruments proper for cutting away the carious part of a bone, and it cannot be safely enlarged, we can only hasten the exfoliation by fully mortifying all that is spoiled, by repeated applications of actual or potential cauteries. When the first is to be used, the bone ought to be well dried, that the iron may not be cooled by the moisture; we are commonly directed to guard the sides of the sore with wet rags; whereas, when either the iron is to be applied from time to time, or the exfoliation cannot be speedily made, while we wish to continue a large external opening, the reasonable practice is to burn the sides of the sore into a fully mortified eschar, if some part is not to be hurt, the burning of which might be of ill consequence; for while this dead eschar remains, less moisture will be thrown out, and the subsequent applications of the hot iron can be made with little pain to  
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the patient; and the orifice does not contract. If a bone which is to be burnt lies deep, the iron ought to be introduced through a canula. If potential cauteries are chosen, the common caustic of quick-lime and soap lees deserves the preference to any of those composed of the acid spirits ; for it gives not near so much pain, and is not so apt to occasion convulsions ; it penetrates better than the dry forms of eroded metals, and does not run so much when it melts, as the more liquid acids do ; it either is not absorbed, or its effects are not observed in the blood ; whereas the mercurial preparations frequently raise an unexpected salivation. This eschar round the sides ought to be kept from separating as long as the surgeon can, by soaking it frequently in ardent spirits, by which it may sometimes be near as long as the exfoliation of the bone is making, if the supplicants, pus, and digesting balsams are rightly applied. When the affected part of the bone is fully mortified either of these ways, the case is reduced to the first supposition, and is to be treated in the same way. I prefer the chirurgical instruments to caustics, with which the whole corrupted part can be taken away at once, wherever they can be conveniently made use of. After an exfoliating piece of bone is moveable, the orifice of the sore ought to be made so large, as the piece can easily be brought out, and without leaving any considerable hollow ulcer under the skin ; for thus the pricking pain which a loose piece occasions, when left to work its way through a small passage, and the suppuration and sinuous ulcers which may be occasioned by its remaining under the teguments, may be prevented.

#### *Of the worm-eaten caries, or ulcer of the bones.*

The cells formed in the eroded bone in this species of caries, lodging and retaining the acrid fancies, which increases the disease, it is necessary to destroy all the affected part of the bone, as soon as can conveniently

veniently be done. Where the proper instruments can be applied, rasping, chizzeling, or trepanning, will most speedily answer the intention. After any of these operations are performed, the cure is the same as in the dry caries. When the sanies comes from the cancelli of the bones, the corrupted sides ought to be taken out by one or more applications of the trepan. If the carious part is of a large extent, the trepan is to be applied all round the circumference of it, and the bridges being cut through, it is to be all raised up. Robert Watson was received into the infirmary for a swelled carious tibia; the teguments were all mortified by caustic, and then cut away; the operation of the trepan was performed fourteen times in the circumference of the corrupted part, and all the anterior internal side of the middle of the tibia was taken out, new flesh rose from the cancelli, and became firm bone. If less of the firm sides of the bone are found to be corrupted, than what, on opening the cancelli, we discover affected, care must be taken that the matter within the bone be easily discharged. When by the orifice through the sides of the bone being in the lower part of the putrid cancelli, the matter easily flows out, or all the affected cavity can be filled with proper dressings, the cure may be made without taking any more off the solid sides of the bone. A girl, after the small-pox, had an ulcer near the internal malleolus; a hole was eroded by the matter through the bone, large enough to let one's finger enter, a probe was introduced three inches upwards within the tibia without meeting any resistance; but on directing it downwards, the bone felt full of firm flesh. A pastill made of myrrh, aloes, and honey, had been put every day into the bone, and the girl had a constant purging, which ceased a day after the aloes was omitted. An injection composed of digestive and honey of roses, dissolved in water with some vinegar, was thrown every day into the bone, the pastill of myrrh and honey was introduced a little way, the cavity of the bone gradually filled up with

with new flesh, and a compleat cure was made. When the sanies stagnates because of the unfavourable situation of the aperture in the sides of the bone, one or more new openings must be made with the trepan, till either the sanies has a free exit, or all the part of the bone covering the putrid cancelli is taken away, when the common methods for other ulcers are to be employed. If we cannot perform the necessary operations for removing a worm-eaten caries, we must burn it frequently with a red-hot iron, which seems to be preferable here to the potential cauteries. When the sanies is in great quantity, and very fetid, and the bone can't be come at to do what is necessary for a free discharge, so that there is reason to be afraid that not only the bone may be further eroded, but that the sanies may be absorbed, the discharge of the matter is to be encouraged as much as possible, and such medicines applied as blunt or destroy its acrimony; it is likewise necessary to dress frequently, and wash out the sanies at each dressing with a proper liquor. Ardent spirits, tinctures made with them, and essential oils diluted, have been used for this purpose; but these retard the separation of the corrupted parts, and render the ulcer callous, which is of some advantage, as preventing proud flesh while the bone is not separated, but is troublesome to remove afterwards; spirituous medicines are readily absorbed, and produce more or less fever. Some of the most common tinctures employed, that of aloes particularly, frequently brings on a constant purging. Common digestive or honey, or both dissolved in water, with which vinegar, or some drops of an acid spirit, have been mixed, more effectually correct the putrid sanies, and can be used in any quantity to wash it out of the sore. When the ulcer is deep, this medicine ought to be thrown into it with a syringe, that it may penetrate every where, and bring the sanies away when it returns.

*Of the carious caries, or ulcer of bones with hypersarcosis.*

In this disease, spongy flesh grows in the cells of the bone, the only circumstance which distinguishes it from the foregoing, wherefore the indications are the same in both, only as this flesh is apt to bleed, and obstruct the surgeon's view, rasping, chizzelling, trepanning, are not so proper as cauterizing; and seeing the liquors constantly ouzing from the spongy flesh soon cool the hot iron, the potential cauteries are preferable to the actual. The caustic will require to be frequently applied, because this kind of caries is generally deep, and therefore it will be convenient to make an eschar round all the sides of the ulcer at the first application of the caustic, and to keep it as long on as possible, by soaking in ardent spirits, that it may serve to prevent the future caustics from spreading too far, or giving pain. The moisture which the spongy flesh in this disease spews out, especially when irritated, is so great, that I have daily dressed with powder of common caustic, removing a considerable quantity of gelatinous stuff which collected on the surface where the caustic had been applied, instead of the eschar which uses to be made in drier parts. If the caustic makes an adhering eschar, it is in vain to apply any more caustic till that eschar separates, which is to be hastened by suppurant ointments. By such repeated applications of common caustic, I have, in a short time, consumed a whole metatarsal bone of the great toe of an adult, and have penetrated into the cancelli in the middle of a tibia.

*Of the phagedenic caries with hypersarcosis.*

The management of this caries is nearly the same with the former, only one or two applications of the potential caustic are sufficient to mortify some of the surface of the solid bone, which seems to reduce it to the dry caries. But I must observe, that when

this caries only seizes one part of a bone, which seldom is the case, the flesh which thrusts off the mortified squama, is for the most part as phagedenic as what appeared at first; and therefore even in this most favourable supposition, the surgeon should not promise a cure, unless he has corrected the habit or topical indisposition by internal remedies. When this disease has taken firm root, it will spread upon one end of a bone, which was in appearance sound when the cure of the other end attacked with it was begun, and it will creep along from one bone to another, with this disadvantage too, that it is far gone before one can well discover it.

*Of the scrophulous caries.*

The spoiled bones here being principally retained by their ligaments, are too sensible to be eroded, and cannot conveniently be cut through. Surgeons do mischief when they forcibly keep open and dilate the orifices of ulcers where such bones are, by cramming them with hard dressings, and by wasting down the spongy flesh with escharotics, while they are forcibly endeavouring to make the bone come away. Such tender constitutions as these patients have, cannot bear such rough treatment. What I have always found of most service, or rather which did the least hurt, was to destroy fully the teguments covering the abscess formed on the bone, with caustic; to cut the eschar through the middle; to evacuate the collected matter, and to save the eschar on the sides as long as I could; to order mild applications afterwards to the sore, and to wash it frequently with water for assisting the discharge of the matter; or, if the matter became fetid, to mix a little vinegar with the water.

*Of the schirrbo-cancrrous caries.*

Cauterries have the same effects here as in ulcerated cancers of glands; they create great pain, occasion hæmorrhages,

hæmorrhages, &c. without diminishing the tumor. Most other medicines do mischief, none do good; extirpation only can make a cure, which may be done either by trepanning round the root of the excrescence, cutting the bridges between the holes, and bringing all away; or the member is to be amputated.

*Of the spreading癌ous caries.*

This sort of cancer seldom cures; it will sometimes get a skin upon it after cutting or burning, or with gentle drying medicines, or dry lint; but often breaks out again unexpectedly. In short, there is no certain cure yet found for it. I never saw this disease originally formed in the bones; they are only affected by being in the way of the disease; so that whatever change the original disease undergoes, the bones partake of it.

*An account of a monstrous child; by Dr. JOHN BURTON, physician at York. Vol. V. art. 23.*

A Woman was brought to bed of a child which had no appearance of any parts of generation; the child in other parts was made as common, except half way between the navel and os pubis, where was a circular orifice of an inch diameter, and a spongy substance within it, which looked like the glans penis excoriated; but it did not project in the least from the body. Through the almost innumerable orifices of this body, the urine ouzed continually, sometimes mixed with blood. The child lived to the age of five, and then died of the small-pox.

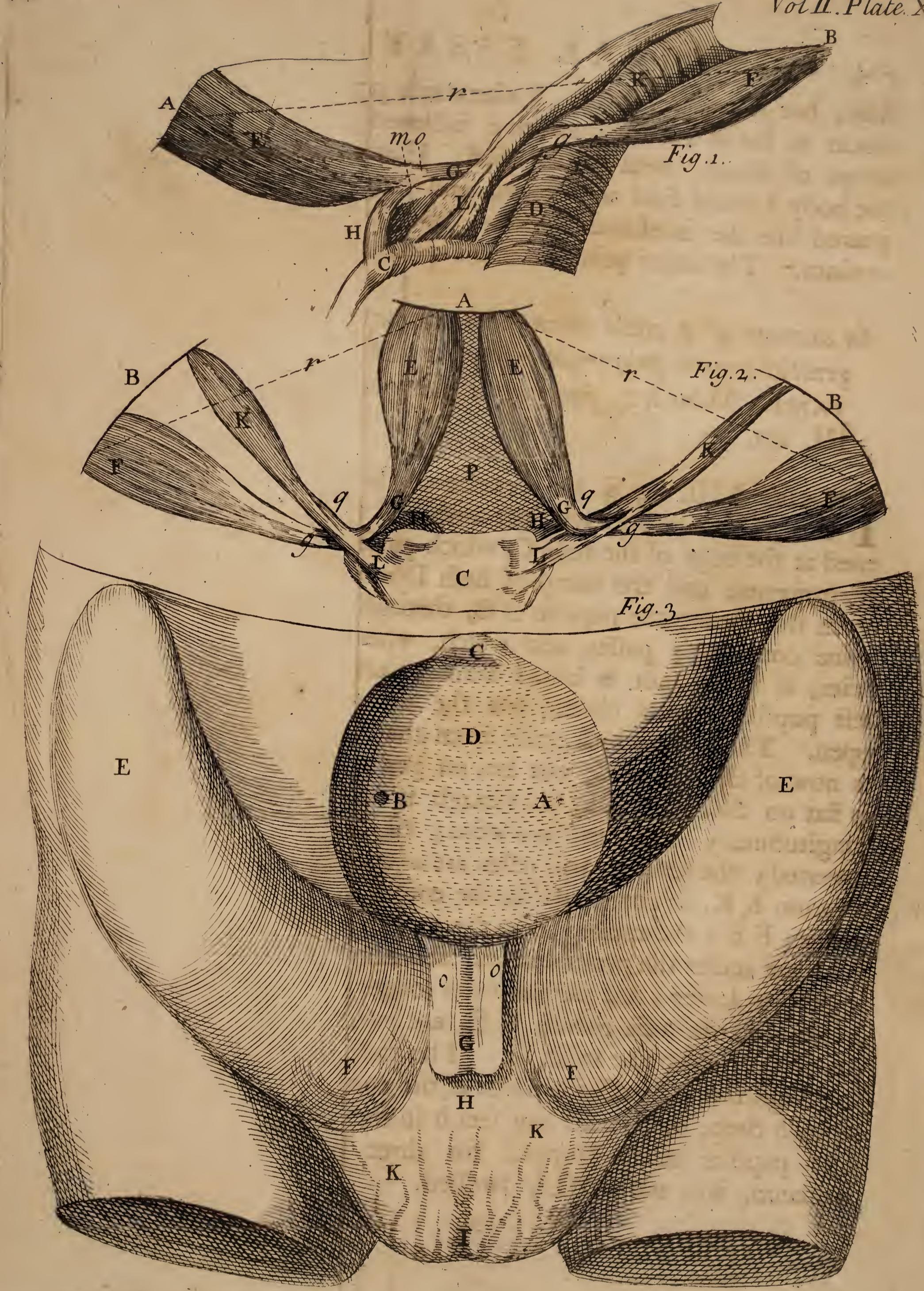
*A child without an anus, or intestinum rectum; by Mr. JAMES JAMIESON, surgeon in Kelso. Vol. IV. art. 32.*

A Child was born without any appearance of an anus. I made an incision where the anus should be, and through that endeavoured to reach the inter-

stine, but not with success. I afterwards passed up a trocar as far as I durst; nothing followed but some drops of blood: next day he died. Upon opening the body I could find no rectum, and the colon appeared like the intestinum cæcum, and full of meconium. The other parts were in a natural state.

*An account of a child born with the urinary and genital organs preternaturally formed; by Mr. JAMES MOWAT, surgeon at Langholm. Vol. III. art. 14.*

**I**N plate XIII. fig. 3. are represented the parts of a child who was born with the umbilical vessels fastened at the edge of the hole C, which passed thro' the peritonæum, and the lump of flesh D rose from it; from this sprung the papillæ A B, through which the urine continually passes, and which, when the child cries, is forced out as blood from an artery. The left papilla is now closed, but the other continues open. The penis which arises from the inferior side, is now of the size of G, but has no perforation, and is flat on the upper side, as though it had been cut longitudinally. O O, are two veins; H, the prepuce inverted; the scrotum and testes are as common; the scrotum K K, is corrugated to the end of the prominencies E E; the raphe I is in the middle; the testes F F, are under the prominencies, and may be moved higher or lower; the perinæum is longer than usual, as are also the ossa pubis; E E, are two prominencies under which the testes lie. The child is healthy and vigorous. I passed a probe at the papilla B about an inch deep, but could not feel it in the perinæum. The papillæ being stopped for three hours, the perinæum was not sensibly swelled.





Two examples of children born with preternatural conformations of the guts; by Mr. JAMES CALDER, junior, surgeon in Glasgow. Vol. I. art. 14.

A New-born child had a large share of the intestines lying without the teguments of the abdomen; they had fallen through a perforation half an inch above the navel, which was entire; the skin was closely united to them. The child was lively, and for twelve hours received milk and syrups by the mouth, without any appearance of uneasiness; but after that time vomited every thing up till its death, which happened four days after: all the while it had no passage by the anus; the guts were inflated, had no peristaltic motion, gradually inflamed, and at length became black. When the belly was opened, the jejunum, ilium, and part of the colon, with the cæcum, appeared to have got out; the parts of the jejunum and colon, which were engaged in the perforation, adhered to each other, and were so small, as scarce to admit a goose quill; there was no appearance of a mesentery; all the other viscera were found. Another child, during the seven days it lived, vomited up every thing it swallowed, but voided nothing by the anus. On opening the body, the stomach appeared in good condition, but the pylorus very hard; on cutting of which, a glandular-like piece of solid flesh appeared, which so closely adhered to it all around, that there was no separating it, and there was not the least perforation in it. Below this, the duodenum was divided into two, and continued thus to about one third of an inch above the jejunum. Into the largest of these divisions the biliary duct opened. All the intestines below were distended with air, and a small quantity of meconium was found near the podex: the other viscera were all sound.

*The dura mater ossified, and other morbid appearances observed; by JOHN PAISLEY, surgeon in Glasgow.* Vol. II. art. 21.

UPON dissecting a body, I found the following appearances; the omentum much emaciated, the vesica fellis as big as one's fist; the ductus cysticus obstructed, so as not to admit a probe. Upon opening the gall-bladder, I found it full of bile of a dusky colour, and many small stones mix'd with it. I was not able to discover the mouth of the duct in the cystis; the liver was schirrhous, and grown very large, as was the spleen, which adhered to the diaphragm, from which it could not be separated without violence. The left ventricle of the heart was much larger than the right, and the sides as thin. There was a hole in two of the semilunar valves as big as a crow-quill, through which the blood, in the contraction of the aorta, might return into the ventricle. Upon opening the head, I found hard bodies in the falx, which proved to be bones, four on the right side, such as are represented in plate XIV. fig. 1. EEE. No bones appeared upon the external side of the dura mater. In the falx, near the anterior part, was a bone an inch and a half long, and half an inch broad, protuberant on the right side, and angular at N, with sharp points all around. On the left side it was a little hollow, and there appeared another bone K, lying in the same manner in the falx and dura mater. Near the fastening of the falx to the crista galli, was another bone G. I have not been able to procure any exact account of this man's manner of living, or disorders: all that I could learn about him was, that he had been a soldier, and had served abroad, and returned home twenty years ago: he never made any great complaint of the head ach, nor was ever much out of order, till he was seized with a fever, and afterwards with a jaundice, which was the occasion of his death,

## Explanation of plate XIV.

AAAA, the sinus longitudinalis superior ; BBBB, the sinus longitudinalis inferior ; C, the fourth sinus of the dura mater ; DDD, part of the dura mater of the right side turned up, so as to be in a plane with the falx, that the four following bones may be seen ; EEEE, four small bones, the three anterior being the largest ; F, the large bone in the falx, very protuberant, and angular at M, being more than half an inch thick at this part ; G, another small bone equally conspicuous on both sides ; H, the second process of the dura mater ; L, the anterior part of the falx, where it takes its rise from the crista galli. Fig. 2. AAA, the sinus longitudinalis superior ; BBB, the sinus longitudinalis inferior ; C, the fourth sinus of the dura mater ; DD, part of the dura mater of the left side turned up, that the following bone may be seen ; K, a small bone on the left side ; F, the appearance of the large bone in the left side of the falx ; G, the small bone in the falx, equally visible on both sides ; H, the second process of the dura mater ; L, the anterior point of the falx.

*A skull uncommon for the number and size of the ossa triquetra ; by ALEX. MONRO, P. A.*  
Vol. V. art. 15.

THE ossa triquetra, which are often found in the sutures of the skull, especially in the lambdoid, in a small wound, may be mistaken, by persons not acquainted with them, for fractures of the cranium. Plate XV. fig. 1. represents the back view of the cranium ; the pricked lines AA, terminate in ossa triquetra in the upper part of the lambdoid suture ; BB, are the holes in the parietal bones, larger than usual. Fig. 2. is the vomer of a child in its natural situation ; a, the inferior part, which rests on the plates of the palate and maxillary bones ; b, the posterior edge between the back part of the palate,

and the base of the skull ; C, the hollow which receives the processus azygos of the sphenoidal bone ; d e, the saw-like edges which receive the cartilaginous lamina of the os ethmoides : this, from e to f, is cartilaginous even in adults. Fig. 3. is another view of the same bone, with the inferior side upwards, in order to shew the little rising Z, which enters between the laminæ of the palate.

*The brain forced by coughing through the cicatrice of a wound of the head, where a considerable piece of the cranium had been taken out ; by Mr. JAMES JAMIESON, surgeon in Kelso.*  
Vol. II. art. 12.

A Girl thirteen years of age, by a fall of a slate, had her skull fractured, with a great depression of the bone near the coronal and sagittal sutures ; the common symptoms attended ; she was immediately blooded, and the trepan applied : upon endeavouring to raise the depressed pieces of bone, I found them separated from the skull, and therefore took them all away : I covered the dura mater with a syndon, dipped in honey of roses, and dressed the wound in the common way ; a clyster was administered, and before night she spake, and seemed pretty well, only her arm was paralytick ; in three months she was perfectly cured. Soon after the accident, I applied a broad piece of lead over the wound, big enough to cover the whole dressings, and kept it on by pieces of tape, which tied one under the jaw, and the other behind the head, and enjoined the use of this lead, which was continued for two months after she was cured : in about seven months she was seized with a chin-cough, which one night became so violent, that it forced two ounces of the brain through the cicatrice : I removed this away, and applied the proper dressings, with the plate of lead over all : she was immediately taken with a palsy in all the limbs, but still retained the use of her tongue ; was inclined to sleep, had a low

Fig. 1.

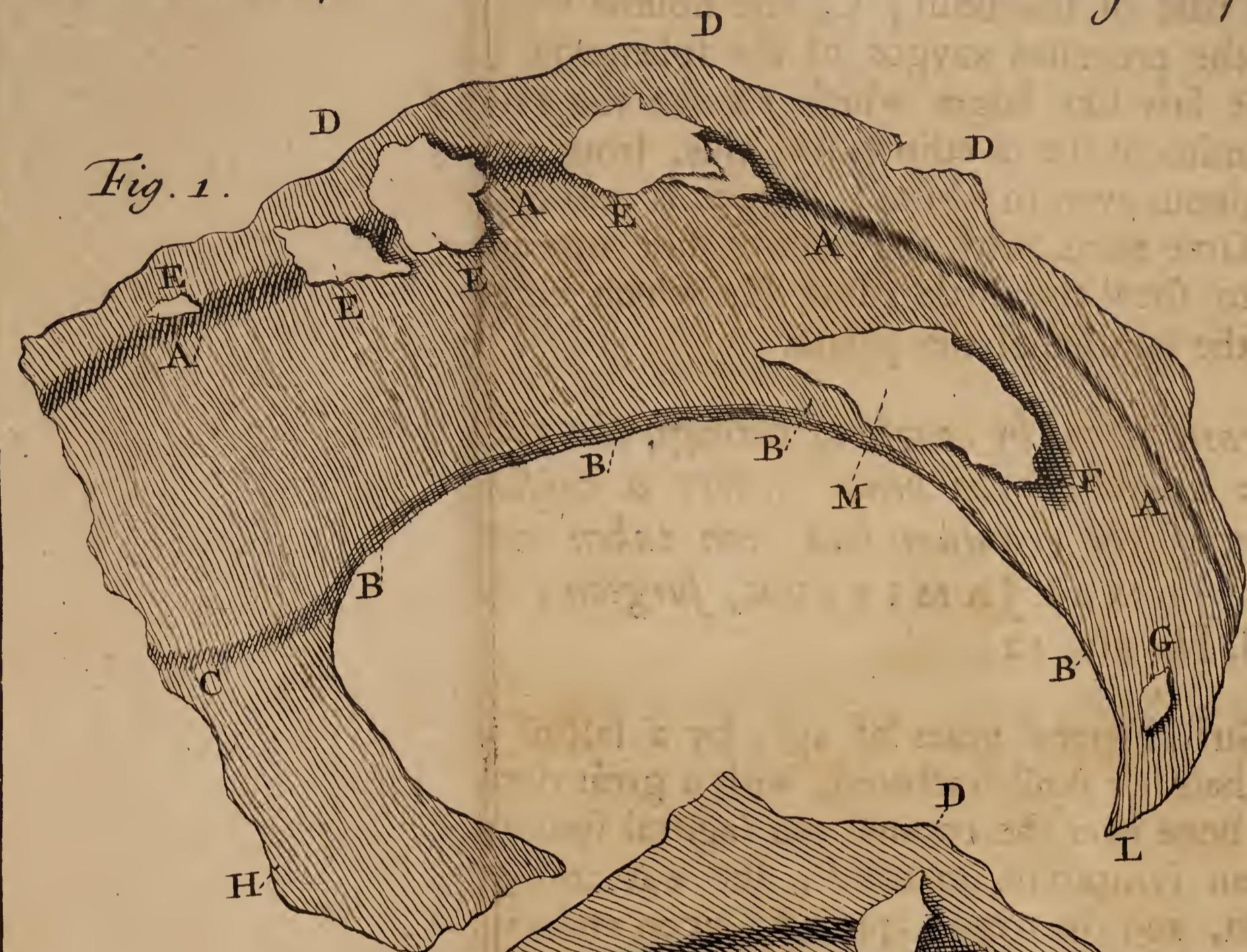
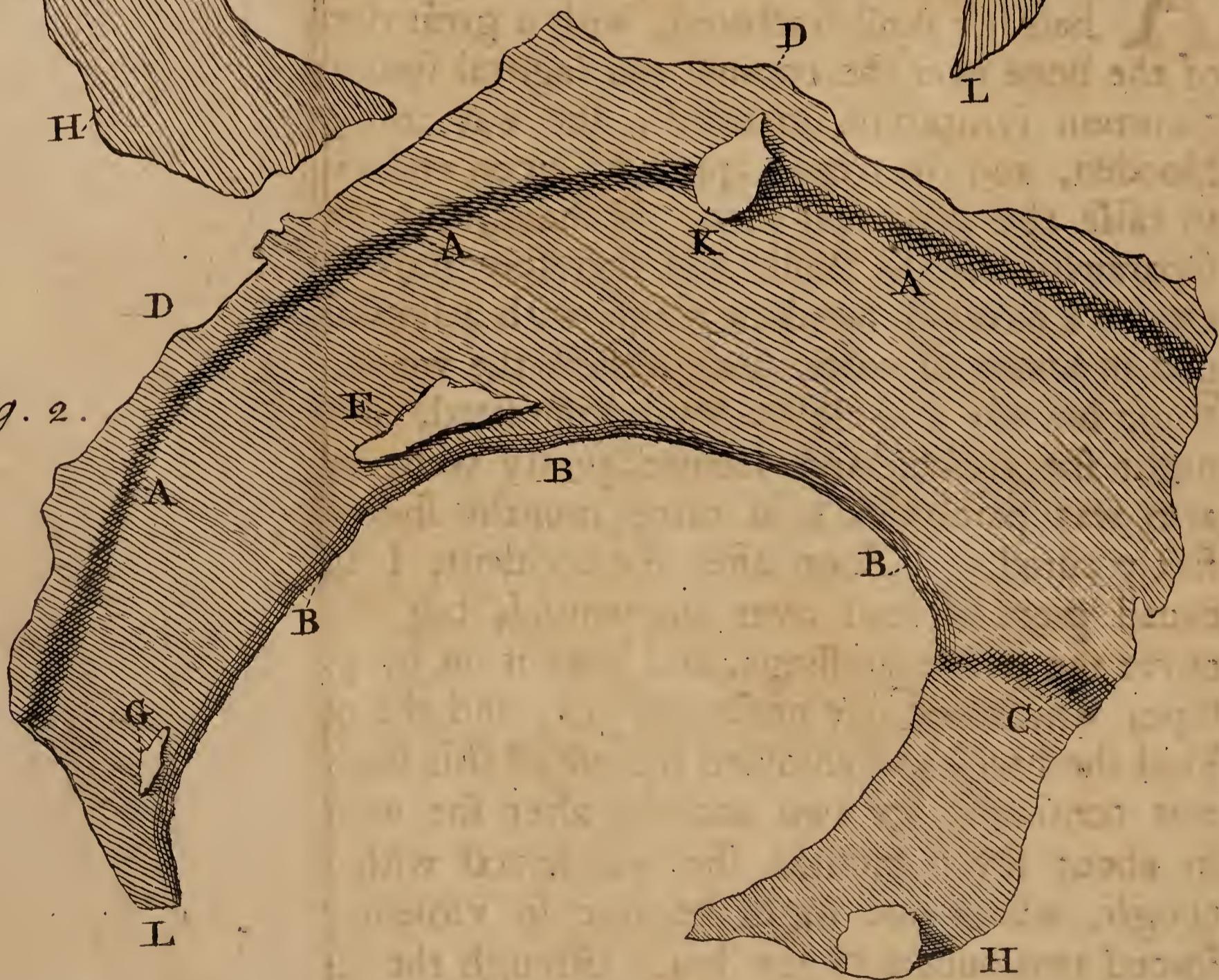


Fig. 2.



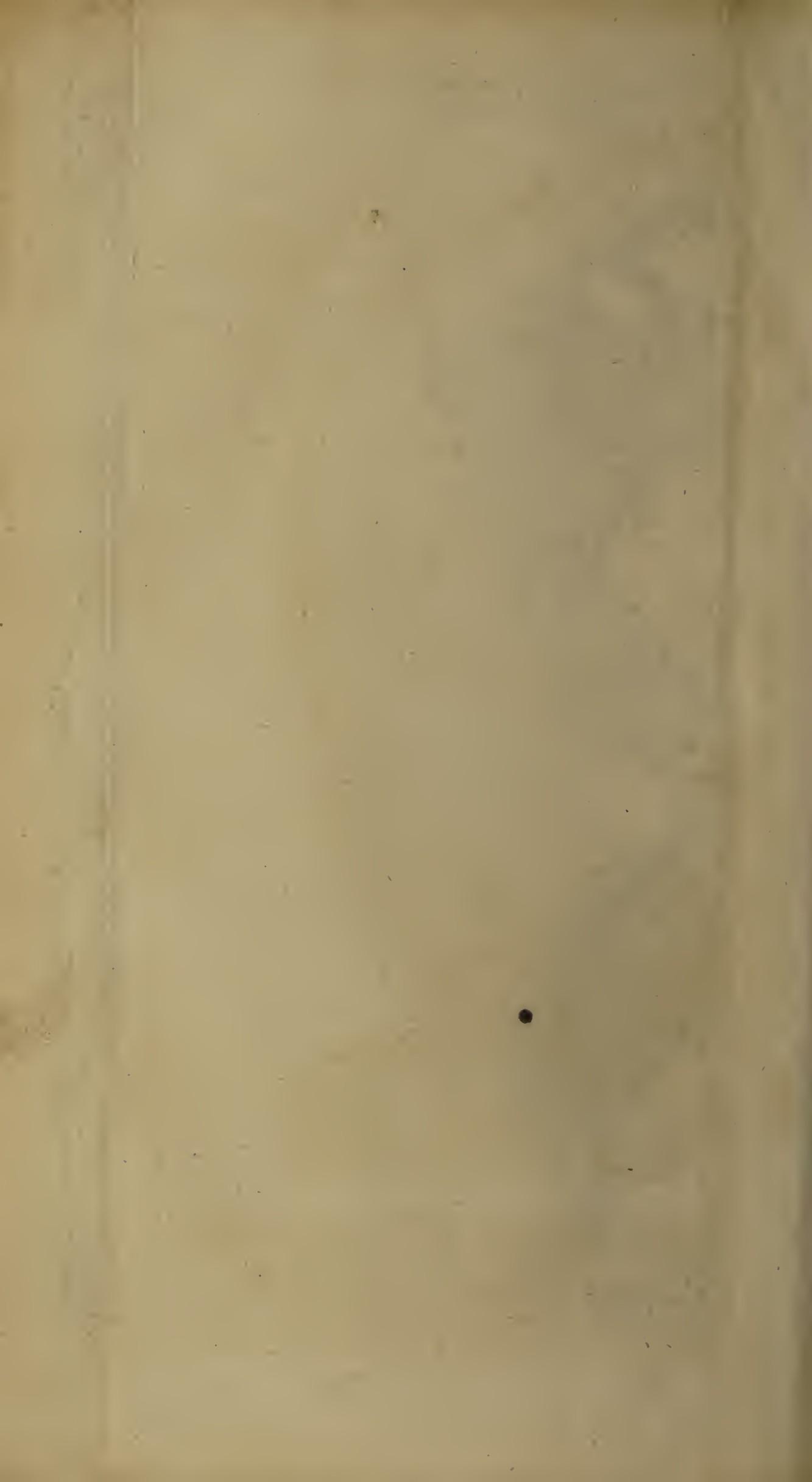
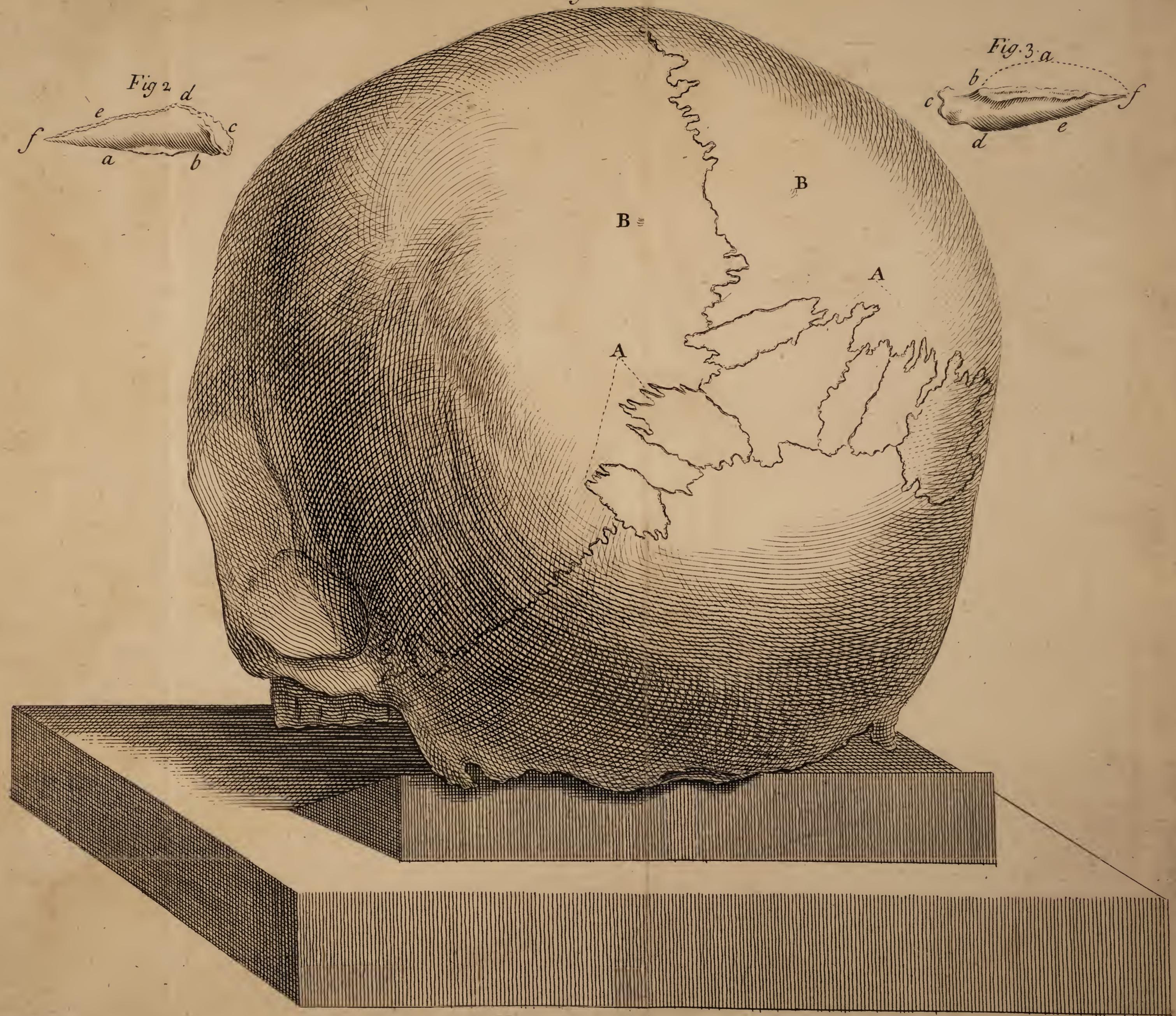


Fig. 1.





low pulse, and discharged her urine involuntarily, and died in five days after. From which accident one may learn, how necessary it is to apply a proper covering to the head, where a great part of the cranium is taken away, till the callus is grown sufficiently strong.

*An impregnated ovary, and supernumerary ribs and vertebra; by Mr. JOHN GEMMIL, surgeon in Irvine. Vol. V. art. 22.*

**I**N dissecting the body of a woman thirty years old, I found the tubæ Fallopii greatly distended, and the right one much inflamed. Upon squeezing the left, a white body, of the size of a large pea, came out of it, which was followed with a considerable quantity of a white viscid liquor. The membranes of this body were strong and tough, and within them I found a gelatinous substance; the white coloured liquor was in colour and consistence like semen. Upon opening the left ovary, (which was much larger than the other) a transparent viscid fluid ran out of it, and there remained a reddish substance, about the same consistence with the crystalline humor of the eye: I opened the right ovary, between which and the end of the Fallopian tube, there was such a body as was squeezed out of the left, but shrivelled and decayed; the right tube contained the same sort of white matter as the other. In the skeleton there are thirteen vertebræ of the back, and as many corresponding ribs, viz. eight true, and five false.

*Supernumerary teeth; by Dr. GEORGE THOMSON, physician at Maidstone. Vol. V. art. 16.*

**T**HE observations of supernumerary teeth, are generally inaccurate; I have therefore sent you a figure of a skull with supernumerary teeth, in which their situation may be easily seen: plate XV. fig. 1. shews the bones

bones of the upper jaw, where you may see how much of the right os maxillare is removed to shew the tooth A. Fig. 2. part of the right os maxillare, below the line Z, in fig. 1. viewed on the posterior part, that the socket B, which held the tooth A, fig. 1. might be seen ; fig. 3. the tooth A, which has all the characters of a dens caninus ; fig. 4. is the inferior part of the maxillary bones, where, the tooth A, in the former figures, appears here in the right side, and C is seen coming through the palate lamella of the left maxillary bone. The two uncommon teeth, which were of the same form with the canini, were set slanting, so that their points near touched the natural ones. These teeth must have been very troublesome, and their situation and form made the extracting of them dangerous, because the lamella of the maxillary bones must have been broken in the operation ; and how much of the bone would have been brought away, or how far the fracture in them might have extended, would have been very uncertain ; and a communication might have been made between the nose and the mouth, which would be attended with great inconvenience. If such teeth lie in the membrane of the palate, they may occasion disorders which we could not remove, unlesfs we discover'd the cause, and made way for them by cutting through the membrane. Teeth growing thus, may, without a careful examination, be mistaken for exostoses, or schirruses of the palate.

*An extraordinary large gall-bladder, and hydro-pick cystis; by Mr. JOSEPH GIBSON, surgeon in Edinburgh. Vol. II. art. 30.*

**A** Healthy boy, twelve years old, in October fell from a high wall, on his left side, cross a tree : he immediately complained of great pain over the spurious ribs, which, by bleeding, was somewhat decreased ; and not being so great as to confine him, no notice was taken of it for some months ; but at length his parents observing that he lost his flesh

Fig. 1.

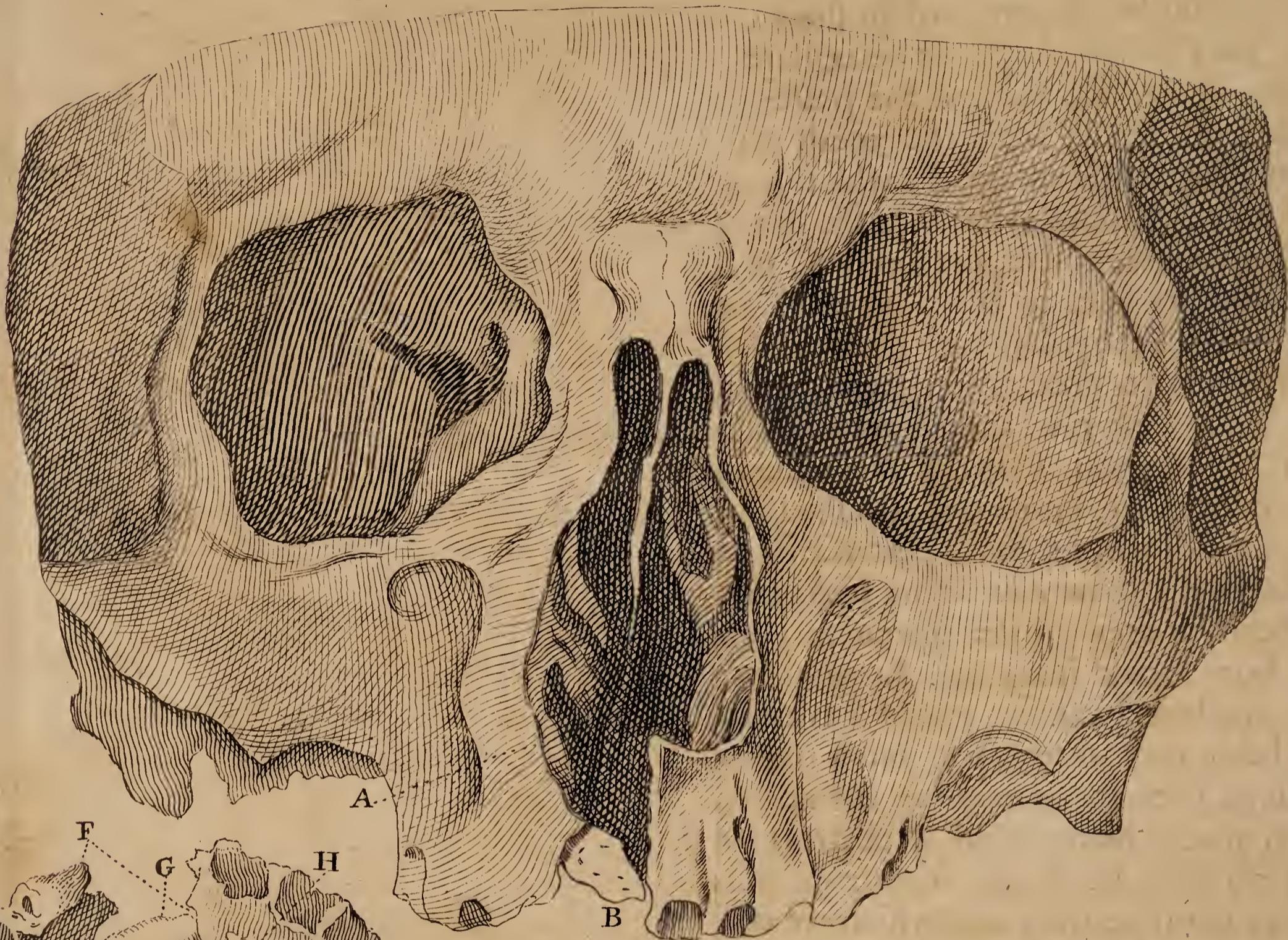


Fig. 3.



A

F

G

H

B

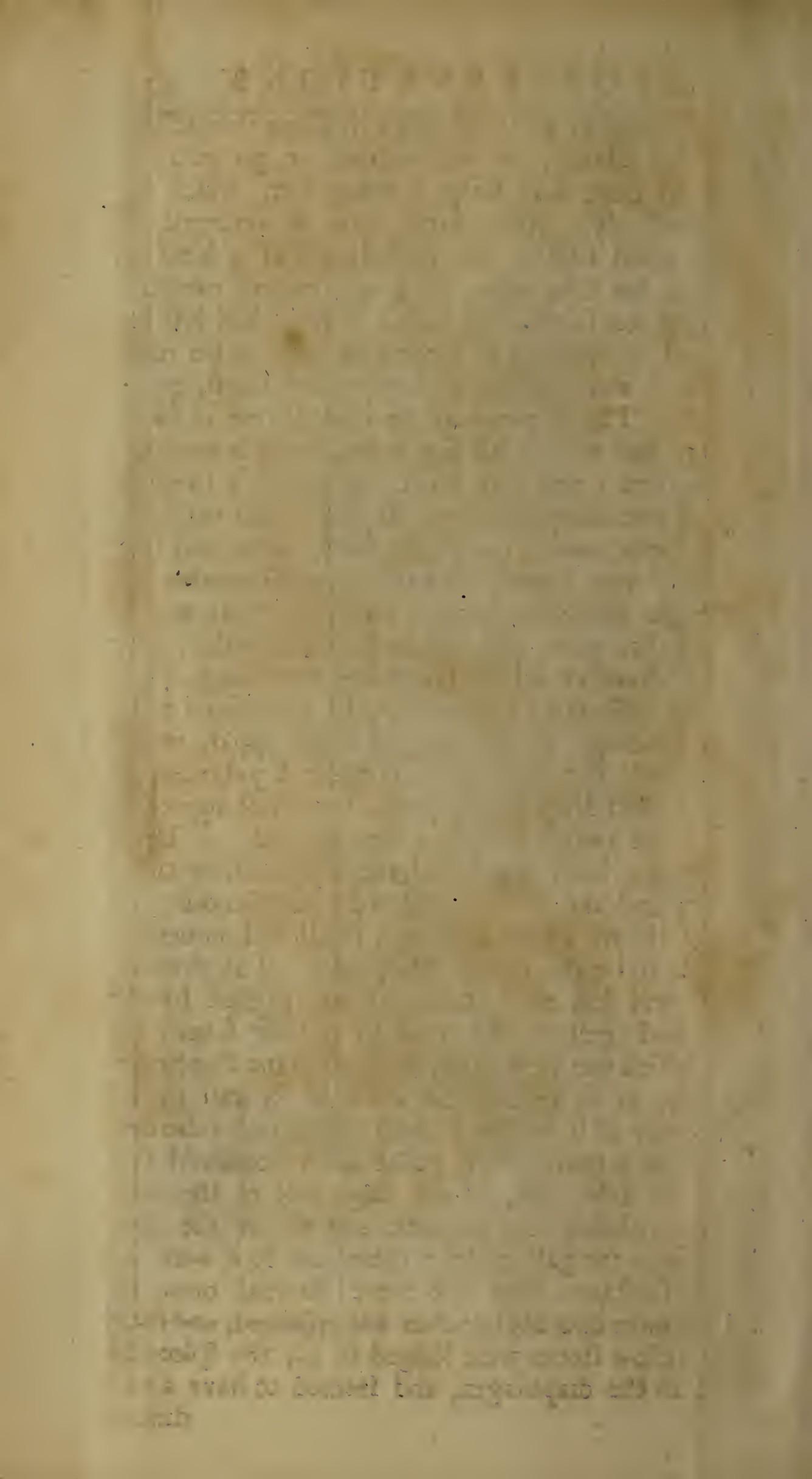
C

D

Fig. 2



E



flesh and appetite, and took less diversions than usual, applied for advice : he was ordered to go into the country to ride, and keep a whey diet, which he did accordingly. After some time he returned in seeming good health, but complained of a kind of weight in his sides upon using any violent exercise. I was now consulted, and found that he had lost his flesh, and complained of a constant pain in his right side, which was followed with vomiting, thirst, quick pulse, &c. The excrements he voided were in small quantity, and white ; his legs pitted towards evening, and his breath was very short ; at length a swelling appeared stretching itself over the scorbiculus cordis to the left hypochondre, by which the sternum, and spurious ribs, were forced outwards : by November his legs, thighs and belly, became greatly swelled ; and in two months, water was felt to fluctuate in the cavity of the abdomen ; all the symptoms encreasing, especially the difficulty of breathing, he was forced to be always standing : he now begged to be tapp'd, which I performed, but with reluctance, for I judged it to be an incysted dropfy. Six quarts of water of a greenish colour came away : two days after he died. Upon opening the body we found the omentum without any fat, and the blood-vessels very conspicuous, and some of them, which were very small and numerous, we took to be the ductus Malpighii. The stomach (which was less than common) was pressed by the spleen and gall-bladder into an oblong form ; the liver, which was very large, adhered to the diaphragm so firmly, as to require the knife to separate them ; in the body of it we saw a great number of tubercles, the size of a bean. The gall-bladder contain'd four quarts of bile, and several bags full of the same liquor, enclosing one another, and all of the same figure with the gall-blader : those next to it were of a firmer substance than the more internal ones : the ductus communis cholidochus was enlarged, and many small yellow stones were lodged in it ; the spleen adhered to the diaphragm, and seemed to have an additional

ditional coat from the peritonæum, which covers the diaphragm : this with its common coat formed a cystis, which held three quarts of serum, very salt, but without smell ; the liver and spleen were joined by a small lobe which passed under the stomach into the cystis of the spleen.

*An uncommon suppression of urine, with a preternatural size of the kidney; by Mr. GEORGE BALDERSTON, chirurgeon-apothecary in Edinburgh. Vol. II. art. 31.*

A Woman, between thirty and forty, who often had nephritic pains, and sometimes voided sand, was seized with a violent pain in her right kidney, which a clyster presently removed : ten days after she had a return of the fit, when she voided twenty-five small stones, and for several days after, three or four at a time : she could keep no solid food in her stomach ; her pains often returned, and about three weeks before her death, she voided three or four more stones, which was followed by a total suppression of urine for fifteen days. Upon my being called to her, I passed the catheter, and thought I had felt a stone : this gave her some ease, though she voided only a few drops of water ; and, on my pulling out the catheter, I felt a resistance, as though a person had been pulling the contrary way : a violent pain seizing her right kidney and ureter, I ordered a clyster with Venice turpentine and an opiate ; after which she voided near a pint of urine, which gave her great relief. Next day, though the pain was gone, her sickness and vomiting continued ; in the evening she took the opiate, and the clyster was repeated, which stayed with her all night : in the morning she took an infusion of senna and tamarinds, most of which she vomited up, but however it gave her two stools : at night she took her opiate as usual, and pass'd the next day pretty well. The twentieth, she took the purge, with some rhubarb, which she strait threw up ; the vomiting increasing,

I gave her a stomachic opiate : the pain at her navel now removed itself to the superior orifice of the stomach, and the next day at noon the vomiting ceased : she breathed with difficulty ; and about four o'clock, being taken with convulsions, died. Upon opening the body, we found a considerable quantity of water between the abdominal muscles and the peritonæum, and likewise some in the belly ; the liver was very large, the right lobe adhered to the peritonæum, and the left was contiguous to the spleen, which was larger and softer than usual ; the uterus was inflamed, and the ovaria much contracted, the peritonæum over the kidney was of a very unnatural thickness, the right kidney of a monstrous size, and the blood vessels very turgid : in the pelvis we found a great number of stones of different shapes and sizes ; one was very large, and the rest, from the bulk of a common pea, down to a large pin's head. The right ureter was somewhat enlarged ; the left kidney very small, with neither stone nor sand in any of the three cavities which were in the room of the pelvis. The left ureter was at first very large, then contracted, and afterwards dilated beyond its natural state. Vide fig. 3. with the dimensions of the kidney and vessels.

#### Explanation.

A, the kidney as large as the life ; B, one of the cavities which supplied the want of a pelvis, opened by part of the kidney being removed. N. B. The three cavities had no communication with each other ; and tho' there were some small urinary canals opened into each other, I could not find any papillæ. C, the trunk of the emulgent artery ; D, the emulgent vein ; E, the nephritic nerve. The branches of all the vessels going into the kidney, are delineated, but want no explanation. F, the canals coming out of the three cavities, to compose one large sac G, at the beginning of the ureter ; H, the ureter preternaturally straitned ; I, the ureter again dilated to the common size.

*The bladder become schirrous from a singular cause; by Dr. EDWARD BARRY, physician at Cork. Vol. I. art. 34.*

A Gentleman of a good habit of body, and temperate manner of living, often discharged gravel and small stones by urine when a child: these symptoms of the stone increasing as he grew up, he at length submitted to be cut, which was done, by the lesser apparatus, when he was twenty-four years old. after the wound was healed, he complained of a pain in the perinæum; and in a short time a tumor appeared, which increasing by degrees to the size of a turkey egg, prevented his riding or sitting, but with great uneasiness. Upon his receiving a sudden jolt in a chariot, which gave him great pain, he resolved to have the tumor removed; the surgeon whom he employed, ignorant of the nature of it, applied a caustic, and upon separating the eschar, found a large stone between the bladder and the perinæum. After the stone was extracted, the urine constantly passed through the wound, which ever after remained fistulous. He lived several years after the operation, but the urine perpetually galling and fretting the skin, prevented his sitting or riding, and made his life very miserable. A year before he died, matter, and sometimes blood, came along with the urine, and all the other symptoms increased, viz. vomiting, pain of the kidneys, &c. Upon dissecting his body, we found the kidneys very large, a stone in one too big to pass out of the pelvis, and in the other also a large stone, together with some matter. In the pelvis, instead of a bladder, nothing was to be found but a hard substance, which I concluded must have been the bladder, by the insertion of the ureters into it. This bladder had no cavity but what the stream of urine kept open: from the ureters to the external orifice, was one fistulous cavity; part of the peritonæum was mortified, the fistula ulcerated, and that portion of the bladder, thro' which the urine passed, cancerated. It is plain that this

this disorder was owing to the external orifice being healed before the internal one, after the first operation ; and the sandy sediment of the urine subsiding, formed a stone between the perinæum and bladder, which increasing for the space of twenty years, dilated the adjacent parts as much as they would admit of. I never saw the patient till two years before he died, and all I could do, was to order him a cooling regimen, and proper opiates. When the last stone was taken away, two different methods might have been used, which I believe would have prevented the change the bladder underwent ; the first was to unite the orifice at the neck of the bladder, by reducing it to a green wound, which might be done by removing the callus lips ; the next, was by injecting a proper quantity of any detergent mixture into the bladder, to keep it supple, and wash away any obstructing matter, and give it an artificial motion.

*Uncommon hæmorrhagies for twenty-nine years ;  
by Mr. PATRICK MURRAY, surgeon at Earlston.* Vol. II. art. 20.

A Woman, now forty four years of age, had, when she was fifteen, the misfortune to be thrown against a stone, at a time when the catamenia were on her, by which accident her left shoulder was much bruised ; she soon after vomited a good deal of blood ; and the next morning her menstrua disappeared : she afterwards complained of great pain in her left shoulder and side, which was attended with sickness and fainting fits, vomiting of blood : she often voided blood at the nose, which she continued to do every day, to the quantity of half a pound, for two years together. Sometimes the blood came away from the nose and mouth, and even from the ears, and the menstrua appeared in a small quantity every fourth night : for four succeeding years she bled at the mouth, nose, &c. having but short intermissions, only the uterus sometimes discharged nothing for seven or eight

eight to eleven weeks, which was attributed to some restringent medicines which were given her. The sixth year cupping-glasses were put to her back, which stopped the hæmorrhagy for seven weeks, but occasioned a violent pain in her breasts. The eighth year, she had a suppression of urine, which went off upon her applying two living toads to the region of the kidneys. In the twelfth year, the hæmorrhagy returned every fifteenth or twentieth day, and so it has continued for seventeen years; but lately the blood flows not only from the parts before mentioned, but also from her breasts, and roots of her nails: the least change in her diet for the better, brings it on; the approach of which she knows by a stiffness in her fingers and toes: a cold east-wind likewise brings it on. During the first twenty years of her illness, she was able to walk, but has since been confined to her bed. In the begining of her illness, she found no change from taking any medicines except the tinct. Antiphthis. For several years she was bled in various parts, every eight or ten days, but it never prevented, nor stopped the hæmorrhagy. Since I have bled her, her blood has appeared of the colour and consistence of water in which flesh had been washed.

*A milky discharge at a small orifice in the groin;*  
*by Mr. JOHN PATCH, surgeon at Exeter.*  
 Vol. V. art. 27.

**A** Boy, about eleven years of age, often complained that his shirt was very wet, from what cause he knew not; his mother imagined it to be from urine; but upon examination found it a liquid like milk, continually flowing from a small orifice in his groin, which continued for three days, when it stopped; it returned again in about six weeks, but did not run continually. Upon this the boy lost his appetite, and became very weak. Upon examining the child, I found only a redness in the skin an inch above the inguinal gland, which looked like a small pustule

pustule. In a month after, a liquor, like scalded milk, trickled out of the orifice very fast; some of it turned to a soft curd, on being heated. I applied a small piece of common caustic on the orifice: after the eschar separated, I healed the sore in the common manner. The boy soon recovered his strength, and has continued ever since in perfect health.

*Plumb and cherry-stones evacuated at an abscess in the belly; by Mr. JOSIAH COLE, Accoucheur, London. Vol. V. art. 34.*

**B.** C. eighteen years of age, after labouring two years under a shortness of breath, hectic fever, &c. was seized with a pain in the right side of the abdomen, which brought on a violent vomiting, &c. At length a swelling appeared near the navel, which was opened, and good pus discharged from it; but upon pressing the parts, some fetid matter followed. The discharge from the wound was in so great a quantity, that the patient became hectic. Some time after, I observed some excrements upon the dressings; and when he was costive, the discharge much increased, and even stones of raisins might be found on the dressings, soon after they were swallowed. One day, he complained of great pain near the wound, through which, soon after, a great deal of excrement passed, with a damson-stone among it, and since many more, with some cherry-stones; tho' he says he has eat neither damsons nor cherries for two years. A fungus appearing, it was dressed with red precipitate, and the next day touched with the lunal caustic. Some time after, he complained of a pain in his belly, which was followed by a fever: for this he took the bark, some of which I found upon his dressings soon after it was swallowed. Upon omitting the bark the fever returned, which obliged him to take it again, and continue it several weeks. He is now in good health, but the excrements are

still discharged at the orifice in his side ; he has also stools, tho' seldom, the natural way.

*A white swelling of the knee ; by ALEXANDER MONRO, P. A. Vol. IV. art. 18.*

**I**sabel Blackadder, a young woman of a delicate tender constitution, having hurt her left leg by a fall some years ago, an ulcer broke out near her heel, and several pieces of bone cast out at it, but it recovered so well, that she went to service again. In the end of 1734, having hurt the same leg by another fall, the knee swelled, became very painful and stiff, for which she was taken into the infirmary ; where, after bleeding, a few doses of aquila alba, and embrocation with aqua Mindereri, the swelling and pain both seemed to abate, but soon became as bad as formerly, and never afterwards yielded to any medicines. The skin of the swelled parts was not discoloured, and on the inside of the joint a fluctuation was felt in one or two points, but the quantity of liquor appeared very small, and the fluctuation had a different feeling to what commonly pus collected in a cavity has. Her pains were very sharp, especially upon the least motion of the affected leg, her flesh and strength decayed daily, and the hectic symptoms increased, which reduced her so low, that she could not be raised to a sitting posture without fainting, which brought her under the necessity of suffering the member to be amputated. In this condition she was when the member was cut off above the knee ; after which she recovered daily, and walks on a wooden leg. When the diseased joint was dissected, all the cellular membranes, in which fat is naturally contained under the skin, between the muscles and tendons, and upon the ligaments, were found full of a glairy matter, which had insinuated itself so much every where, and had made the other parts so soft, that we could scarce distinguish one from another. In several places of this glairy substance, there were small cavities full of

pus.

pus. When the articulation of the knee was opened, all the mucous glands and fatty membranes were seen in the same condition with the exterior parts, the semilunar cartilages themselves, between the tibia and femur, being quite soft, and with the same cellular mucous appearance which the glands had. We also observed some pus within the cavity of the joint, but the extremities of the bones were scarce begun to be eroded.

*An uncommon tumor of the knee, with remarks on  
the white swellings of the joints; in a letter to  
Mr. MONRO, P. A. from Dr. SIMSON.  
Vol. IV. art. 20.*

A Countryman had for several months an uneasiness in walking, from a pain in his left knee, which had got no observable injury: when the pain was greatest, he found something of a hard body immediately under the rotula, generally at the inside of the leg, tho' sometimes at the opposite, and could get no ease, till by chaffing it upwards with his hand, he made it disappear: the parts about were tumified, as we find in the case of a white swelling at this joint, tho' to no great height: the hard body always made its appearance upon walking. I felt it so distinctly, that I supposed it had its seat in the tunica adiposa, immediately under the skin. It appeared so loose and superficial, that I made no manner of doubt of success: I made an incision upon the body, which in the mean time I held betwixt my finger and thumb; but when I had cut through the skin and fat, I found a membranous strong bag between me and the tumor, which made me sensible where this floating body was lodged. I continued the incision, and upon entering the bag, at least four ounces of a thick pellucid humour issued out with the hard body, which I found much of the shape, though larger than a kidney-bean: it then appeared wholly cartilaginous, but on drying it shrunk, and shewed itself a bone covered with cartilage.

tilage. [See the following account by Mr. MONRO, which explains this phænomenon.] In cutting through the bag, which was firm and thick, the patient expressed the utmost pain, which abated after the evacuation. After some hours, he rode two miles, under night, in a most keen frost, which raised the pain, and obliged him to send for me at midnight. I ordered it to be fomented with the most anodyne softening materials I could contrive, but with little success: his knee swelled exceedingly all round; and what was observable, he did not make so much complaint of the place where the incision was made, as at the opposite side: he was bled and purged with calomel frequently, but all to no purpose. For a month's time he was seldom free from horrid cries, nor could he allow his leg to be moved in the most gentle way, and never slept but when he took opiates. Bladders of water round his leg, as warm as he could bear, had little influence; but water syringed took more effect: but tho' this caused the pain and swelling to abate, yet it did not carry it off till I applied a caustic to the outside of the knee; which being kept running, and the syringe continued, it gradually wore off in about a year's time; so that he is quite free from all complaint and swelling, and walks about without any impediment.

*Part of the cartilage of the joint of the knee separated and ossified; by ALEX. MONRO, P. A.  
Vol. IV. art. 19.*

IN the body of a woman aged forty, which I dissected, I found within the ligament of the articulation of the right knee, a bone of the shape and size of a small Turkey-bean, depending by a ligament half an inch long from the external side of the tibia. The bone, when cut, had only a thin external firm plate, being composed within of cells which were full of oil. On separating the femur and tibia, I saw the ligament come out from the exterior edge of the cartilage,

cartilage, covering the exterior cavity of the tibia; and more internally a part of the cartilage of the tibia, of the same shape with the bone, was wanting. In plate XII. fig. 2. A is the bone hanging by its ligament, and B is the bone cut open.

*An ulcer of the lungs, with hydrops pectoris; by Dr. THOMAS SIMSON, Chandos professor of medicine in the university of St. Andrew's. Vol. V. art. 58.*

A Young man who had happily got over the first appearances of a consumption, was again, after some years, seized with the same symptoms, and died suddenly in an asthmatic fit, after spitting great quantities of purulent matter for some time. The quantity of the matter he had been spitting, and a weight which he complained of for some time on the right side of his breast, made me suppose, that his being stifled suddenly with a violent asthmatic fit, was owing to a collection of purulent matter in the cavity of the chest; but upon opening him, I found it was water which had gradually accumulated there, having found in the affected side near four pounds. The thickest and upper part of the lungs in this side appeared knobby and schirrhous; in one part of which I found a sinus which could have received my finger; in another part, there was a solid hardness of some inches, in the middle of which lay a long stony substance, like a twig of white coral. This I took to be the effect of the first fit of the disease he had recovered of, as the sinus was that of the present, and which had supplied the matter he spit in great quantity. Finding the right side so diseased, I slit through the thickest and most bulging part of the lungs in the left side; tho' here they appeared of a good colour, and no way unequal or hard. I found at every straw's breadth of the slit, a drop of purulent matter rise, as from a distinct receptacle. The opening of this person, lets us see fully into his state under his different

ent circumstances : it lets us see first, that an ulcer had formerly been cured in him, but with it part of the lungs was lost ; then we found what a load one ulcer had brought upon the lungs, and that in this diseased state, wherein the absorbing power of the lungs and pleura was lost, or overcome, by too great a flow of water, perhaps from some burst lymphatic, sudden death happened under the appearance of an asthmatic fit, while as yet the person was not at all hectic.

*A large steatom passing with the œsophagus from the thorax into the abdomen ; by Mr. JAMES JAMIESON, surgeon at Kelso. Vol. III. art. 26.*

**A** Carpenter in this place, thirty-six years of age, of a thin make of body, about the middle of February 1732, complained of pains at the heart, in the pit of the stomach, both sides of the thorax, and betwixt his shoulders, a great difficulty in swallowing, and frequent inclination to vomit. About six years before, upon a sudden grief, he was first seized with the pain and frequent palpitation at his heart ; the other symptoms came on gradually afterwards, but never kept him from his ordinary work till now. Twelve ounces of blood were drawn from his arm ; it was sify, like that in a rheumatism. Next day he took pulv. ipecacoanhæ drach. sem. tartar. emet. gr. ij. which purged him four or five times, but did not occasion the least nausea. I gave him also doses of the pil. gummosæ twice a day, washing them down with decoctum amar. in which a small quantity of sal absinth. was dissolved ; the pained parts were fomented with a strong decoction of the aromatic plants, and a large plaster of theriac. andromachi ol. mac. per express. and the powder of the carminative seeds applied. The bleeding gave him some remission of pain, and was repeated twice in the two following weeks, with some short relief each time. His complaints however increased, and he shewed me a hard painful tumor, immediately below the cartilago xyphoides,

phoides, which he said he had only discovered the preceding night. A physician, who was called in, suspecting that an abscess was forming in the stomach, ordered him a milk diet, and linseed-tea, or a decoction of ground-ivy, or milk and water, for ordinary drink, and caused an emollient cataplasm to be applied to the tumor. He continued to turn gradually worse till about the middle of March, when he was attacked by a vomiting, which no medicines could restrain, but were thrown back again as soon as swallowed ; his thirst became excessive and perpetual, and his drink, tho' taken in small quantities, was vomited as quickly as his medicines ; a singultus soon came on, which continued to his death. He passed very little fæces, and these were generally procured by gentle clysters ; his urine was for the most part limpid ; when there was any sediment, it was white. During the whole course of this disease, the patient's pulse was never quick or strong, but low and languid, and some times intermittent : his pains were most severe in the night, and at last deprived him almost entirely of sleep, and for a whole month he did not lie down, but sat bended forwards with his head on a pillow. In this condition he languished till the first of April, when he died. On laying open the thorax and abdomen, we observed a prodigious large steatomatous body, which filled a great part of the thorax, being grown to the pleura on both sides, to the larger share of the mediastinum and pericardium ; and, accompanying the œsophagus, they passed together through the diaphragm, having enlarged the passage in this muscle considerably, and straitened the œsophagus after entering the abdomen, it was stretched along the dorsum of the stomach to the pylorus, which was also compressed greatly, both the orifices of the stomach being so much contracted, that I could scarce push my finger through either. The tumor was so hard, my knife could scarce cut it ; but after a transverse incision, several sinuses, formed in the firm white substance, discovered themselves : some of them contained

tained a matter like a meliceris, in others, to that of the atheroma ; and, in a third sort, it was purulent and fetid. The fat of the omentum was all wasted, but the other viscera were found enough.

*The ureters obstructed by small stones; by ALEX. MONRO, P. A. Vol. V. art. 68.*

A N old man, who had suffered under some severe fits of the stone, and had passed several small ones, and who afterwards had violent hæmorrhages at his nose, recovered, in appearance, a very firm state of health, and enjoyed it a considerable time. Being attacked with another fit of the gravel, and nothing being evacuated from the bladder, except now and then a spoonful of a clear limpid liquor, more like serum than blood ; and no distension of the bladder coming on, he was blooded, purged, bathed, &c. in vain ; the obstruction remained, he became comatous, and died. The left kidney was considerably less than natural, and became a thin bag ; its ureter was very small, felt hard, was full of gravel of a dirty black colour, squeezed so close together, that no liquor had probably passed that way for a considerable time. The right kidney was distended with urine to a monstrous size, and the ureter was so large, that at first sight I mistook it for a piece of intestine. Upon opening it down to the bladder, I found a small stone lodged so firmly between the coats of the bladder, that I had some difficulty to bring it out ; it was not above a fourth of an inch from the orifice of the ureter into the bladder.

*A remarkable hydrocephalus; by Mr. JAMES MOWAT, surgeon at Langholm. Vol. III. art. 22.*

A Child of a year old is rather less than she was in the month, having so little flesh, that she is almost a skeleton ; she has no colliquative stools, but

is dull and lethargic : she has two teeth in the under jaw, and two appearing in the upper. When she was a month old her head began to swell, and continues yet daily to increase ; it is now twenty-seven inches and a half in circumference ; from the point of the nose (which is very much depressed in the middle) to the nape of her neck, twenty-one inches and a quarter ; from the one ear to the other about eighteen inches. The face, above the eyes, is six inches broad ; the cheeks and mouth are small for want of flesh ; the eyes are large, and she can hide them totally within the orbit, either above or below. All the bones of the face and temples seem to be very large, firm, and broad, without any suture, till near the opening of the head ; the rest of the head is like a soft quagmire, covered all over with a large, dry, yellow scab. The veins on the face, and where the skin is free from the scab, are large, full and blue, and visible in the minutest ramifications. The child takes no food but the mother's milk.

*A hydrocephalus with remarkable symptoms ; by  
Mr. JOHN PAISLEY, surgeon in Glasgow.  
Vol. III. art. 23.*

**A** Boy betwixt six and seven years of age, who had been very healthy from his infancy, was seized one morning with a pain in the left side of his head, attended with drowsiness and lassitude, which increased in the afternoon : he had a short cough, but his pulse was not very quick ; he loathed all kinds of meat and drink, had an inclination to vomit, with a flushing in his face at times, other whiles he was pale and ill-coloured, and had pains in his belly, the gums of his four back jaw-teeth were much swelled, and his mouth hot. It being suspected that worms were the chief cause of his disorder, some worm-powders were given him, clysters injected, and his belly rubbed with the unguentum vermifugum. The three first days, he continued in much the same way, being brisk and lively in the forenoon, but dull and

and heavy in the afternoon. On the fourth day he complained more of the pain in his head, and being a little more feverish, he was let blood at the jugular to betwixt four and five ounces, a clyster was injected at night, and next morning he took a vomit of ipecacuanha, which operated very well; at the second puke he brought up a live worm, five or six inches long, of the teres kind; by this he seemed to be somewhat easier, and more lively all that day. On the sixth, he took some more of the worm-powders: a vermifuge plaster was applied to his belly, and a clyster injected. On the seventh, his pulse was slower than the natural, and this morning he was drowsy and dull; he took a strong purgative potion, which had no effect; wherefore a clyster was injected, by which he had only one stool, being a discharge of some hardened faeces covered over with a kind of mucus; with them a worm like the former, nine inches long, came away. On the eighth, he was dull and sleepy, and would not take any aliment or medicine. The clysters were continued, but never gave him above one stool. In the afternoon, he seemed lethargic, his pulse slow and unequal: a clyster made of the tops of wormwood and the lesser centaury boiled in claret, was injected, and a bitter infusion in wine was ordered to be taken: these raised his pulse a little, and he began to take some panado, or other soft aliment, which he did in a very quick manner, staring very broad, and without speaking a word, but could not be prevailed upon to taste any kind of drink; and so soon as he had done, immediately fell asleep again. On the ninth, he was much as the day before, only more comatous; a blister was applied to his neck, which rose well, and discharged a good quantity of serum, but neither roused, or made him more sensible, only his pulse was a little quickned. On the tenth, he was much as the day before, only his face was very red, and somewhat swelled, and he frequently put his hand to the left side of his head, breathing quicker than usual, with a wheezing and some difficulty;

difficulty; his pulse was slow and languid: upon which his head was shaved, and the part where he complained the pain was, though there was no appearance of swelling, was scarified and cupped, and three or four ounces of blood drawn away: this eased him as to his breathing, and removed the redness and swelling of his face; but produced no other visible effect; suppedalia were applied at night. On the eleventh, his pulse was exceeding slow and intermitting, the coma so much increased with startings, that he could take no kind of aliment, and appeared to have no manner of sense; and thus he continued till next forenoon, when he died. All along he had such a heaviness in his eye-lids, which were swelled, that he could not lift them up with ease. Upon opening his head, and removing the cranium, I observed a protuberance about the bigness of a large hazel-nut on the dura mater, under the parietal bone of the left side, about an inch and a quarter from the sagittal suture, and two inches from the lambdoidal, which was the place the child complained of: this tumor had made no apparent pitting in the bone; it felt soft, and on opening it, there issued out a little bloody serum, and in the bottom of it I discovered a great number of little white bodies, like the small worms in blown meat; they had no appearance of life, and were contained in a duplicature of the dura mater; the inferior side of which at this part adhered so firmly to the pia mater, that it was impossible to separate them without lacerating these tender parts. There were several other smaller ones along the left side of the sinus longitudinalis superior, besides the common luxuriant risings of the brain: these contained the same kind of bloody serum and white bodies as the large tumor: whether they were real worms, or an obstruction in the glands of the dura mater following some inflammation in these parts, I could not determine, but rather incline to the last; since wherever they were, there was such a strong adhesion of the dura and pia mater, that they could not be separated without lacerating the tender parts

parts below. All the veins in the head were turgid with blood, though there was little or none in the cavities. When, in taking out the brain I had cut the optic nerves, I observed a preternatural thickness of the pia mater, and a large distension of it, as with water; upon cutting it open, about half a pint of yellow coloured water issued out. In dissecting the brain, I found the ventricles had been much distended by the water; the plexus choroeides were hard and schirrhous, with a great number of small hydatides (as I supposed) lying along them in rows, whose coats burst upon the least touch; they exactly resembled the lymphatics delineated by Mr. Ridley, in the fifth table of his anatomy of the brain. There was little remarkable in any of the other viscera, they being all perfectly sound, except the intestines, which were empty, and in several places inflamed, with signs of a beginning mortification: there were some few of the teres worms in them, which appeared dead, most of the small intestines being transparent, and in two places one part was drawn up considerably into the other, like the finger of a glove: it took a considerable force to draw the one out of the other, the intestines being much contracted in this part, though there was no sign of any inflammation in these parts. Since this case, I have seen several children who complained of a pain in one particular part of their head, having a great drowsiness and heaviness in their eyes, a pulse much slower than the natural, a great aversion to food or drink, an inclination to vomit, and other symptoms as this boy had, which made me judge them to labour under the same disease; and the dissection of two, shewed my opinion to be just, the parts being affected in much the same manner as above described; only I could observe in neither of them any thing like the little tumors mentioned in the former case; and in the latter two all the vessels of the plexus choroeides were hard and obstructed, and the pia mater, at the bottom of the brain, immediately under the optic

optic nerves, was so considerably thickened, as to appear almost like the dura mater.

*The dissection of a calculous person; by the same.*

Vol. V. art. 70.

I Opened the body of a youth last November, who died of a stone in the bladder. His parents acquainted me, that from his infancy he was troubled with the gravel, especially from three years of age, he then having severe fits, which lasted three, sometimes four weeks, and then left him for as many months. These fits returned frequently till he was eight years old. In the fit he complained of a great inclination to make water, without being able to make any, except a little at a time; other whiles it forced itself away involuntarily; in both cases with great pain about the os pubis and anus, and pain and heat in the penis; so that he could make no water without going to stool, which brought a procidentia ani upon him. He complained principally of violent pains in his sides, especially the right side, and was continually handling and squeezing the yard, which generally made his arms so feeble, that when the fit was over, he could make no use of them. His fits were worst about the beginning of winter, especially if the season was rainy, seldom attacking him till the rains began. During the summer months, he used to be free of them, had a good appetite, only troubled with a drought, and did not grow in proportion to his age. He was searched when eight years old, but no stone could be discovered either by the anus or catheter; after which he had only some gentle returns of his fits for a year; then they returned violent and frequent as before, and thus continued till he was fifteen, when he was cut for the stone, and a round one taken from him, smooth on one side and rough on the other, about an inch and half diameter, made up of many laminæ. The wound healed in about seven weeks, and for three quarters of a year he was almost

almost free of his distemper, when again it returned with great violence, having, besides the symptoms mentioned, a great pain in the place where the wound had been made, when the fit was upon him, and he used continually to cross his legs (a) and take them off again by turns. His urine was always thick and white, and always with sand at the bottom, and when it stood any time, turned like a white gelly. If he drank any thing liberally, it augmented his pain, especially any strong liquor; a tight bandage from the hips to the arm-pits relieved the pains in his sides, which he complained most of. In September he had a violent fit, lost his appetite, his drought, and all his pains encreased, with a looseness, for a fortnight before his death. Though he was twenty years of age, he was no bigger than one of ten or twelve. Upon opening his body, all the parts in the abdomen appeared sound, but much emaciated, except the kidneys, which were flaccid, and divided to appearance into lobes, as in a foetus; the one on the right side was five inches long, three inches broad, and two thick; its superior convex part was intimately grown to the edge of the liver, and to all that part of the colon which lay immediately above it, the whole fat and membranes being entirely consumed. Upon the superior point next to the glandulæ renales there was a lobe or tumor about the bigness of a walnut which felt soft, as if matter fluctuated in it. Upon opening the kidney, there flowed out a great quantity of a slimy whitish matter like pus. The tumor and the whole kidney collapsed, and looked like a thin bag, the outer substance of it being little above the eighth of an inch thick in most places, and in no place near to the natural thickness of one of his age; the tumor appeared to be an enlargement of one of the productions of the pelvis, which surrounded the papillæ uriniferæ; the pelvis being much enlarged, and its coats very

(1) Quidam etiam cum torquentur, pedes inter se, subinde mutatis vicibus, implicant. Cels. obs. med. l. 2. § de calculo vesicæ.

thick, as was the ureter all the way to the bladder. The diameter of the ureter was much about five eighths of an inch, full of the same matter as the kidney. The left kidney was larger than the right, being full five inches and a half long, and much the same in breadth and thickness with the other, and had the same appearance as to lobes or tumors, only the superior part was more pointed, and had a larger tumor than the other, and contained the same kind of matter. The pelvis was enlarged and thickened in its coats in the same manner as the other; the ureter was near of the same dimensions, the fat and membranes which usually cover the kidneys being likewise entirely consumed; it was so firmly grown to the part of the colon which lay upon it, and to the neighbouring parts, that it was scarce possible to separate them, the substance of the kidney being much of the same thickness. The vesica urinaria was greatly contracted, closely surrounding a granulated prismatical stone of a whitish colour, the largest of the grains of which it is composed being scarce so big as that of a small pin-head: the stone is about an inch and a quarter long, and an inch broad in each side; the coats of the bladder were more than a quarter of an inch thick, and in it there was a small quantity of purulent matter, and some sand.

*A hydrops ascites from a tumor depending from the navel internally; by Mr. WILLIAM JOHNSTON, surgeon in Dumfries. Vol. V. art. 63.*

**A**GNES Sword, who had born several children, imagined herself with child in the forty-third year of her age, and after going a year had violent pains, like those of labour, for eighteen hours, having some alterative medicines given her. After this, her menses returned, and she continued regular eight months; at the end of which she had a flooding, which continued five minutes, and the menses returned

turned no more. She had a fulness and swelling of her belly from the time she thought herself with child, which increased greatly, after having her belly bruised in the fifteenth month of her disease. She continued in a sickly way six years more. In march 1738, I tapped her; and in fourteen months after repeated the operation twelve times: the quantity of water let out was sometimes greater (once eighty two pounds) at other times less; in all it amounted to seven hundred and sixteen pounds. The eighth time she was tapped, the liquor was fetid; in the ninth, tenth, eleventh, and twelfth, or last operation, it had not so strong a smell; but the silver cannula was turned of a bluish colour: after the evacuation of the water by the three last operations, I observed a ball fall from the upper part of the belly to the ossa pubis. On the twenty-seventh of May, 1739, she died. When her body was opened, a large carious excrescence was found depending from the navel by a neck of about two inches diameter; the excrescence adhered to several other parts of the peritonæum, but so weakly that I easily separated it with my hand, and could see no appearance of any vessels, except at the neck already mentioned. When I opened the excrescence, it appeared all composed of cells, communicating with each other; some containing a serous matter, others a substance of the consistence of marrow: from these cells, tubes, so large as to receive a goose-quill, and full of the same sort of matter as was in the corresponding cells, went out to the navel, being contained in a thick muscular substance, of which the neck of the tumor was principally composed. This excrescence weighed eight pounds. Nothing was to be seen in the viscera remarkably deviating from the common structure.

*An ascites in a pregnant woman; by Mr. THO.  
LAURIE, surgeon in Selkirk. Vol. V. art. 64.*

A Woman about thirty-six years of age, the mother of several children, of a good complexion, and generally healthy, except that she was subject to some hysterical disorders after child-bearing, about November 1739, perceived a tumor beginning immediately under the bastard ribs, which stretched itself gradually forwards and downwards, till passing the linea alba, some inches below the navel, it filled the epigastric region to the xiphoid cartilage; so that her belly was distended to the bigness it used to be in her last months with child. The tumor was hard, but she did not complain much of pain in it. Several medicines were given her internally, and some external applications used, but it still increased. About the twelfth of August 1740, as she was going about her house, she imagined somewhat cracked within her, and the tumor disappeared of a sudden, at least was less circumscribed, being more diffused thro' the abdomen; she immediately fell into fainting and vomiting, and became feverish: I gave her an opening ptisan of tamarinds, sena, rhubarb, &c, which purged her exceeding well for several days. Growing impatient under the frequent purging, she left off the ptisan, and took something binding, by which both her urine and purging were stopp'd, and her belly began to swell. Several medicines were tried to restore these evacuations, but without success. The swelling still increasing, she was tapped on the thirteenth of September; and by the help of a good belt and gentle compression, four gallons of water were drawn off, which was all that could be press'd out. She behaved with great firmness under the operation: her belly fell to its ordinary size; she grew perfectly easy, got rest the night following, and pass'd plenty of urine. In a few days, the discharge of urine stopp'd, and her belly swelled apace: by the twentieth of September, it was as

big as before the operation. On the twenty-second, I made a new puncture, and drew off two gallons: she soon after pass'd urine with ease, and in good quantity, and rested very well that night; but next morning she was suddenly seized with a trembling, vomiting, and suppression of urine: she acquainted me that there had happened to her a falling down of the womb, to which I attributed these violent symptoms. I directed her midwife to press up the uterus gently, and apply an astringent fomentation to the parts. When the symptoms were a little abated, I attempted to make some evacuations, by such means as would occasion the least disorder; but notwithstanding these her urine was very scanty, and her belly swelled. She insisted on being tapped a third time, and on the second of October, I made a puncture in the opposite side of the abdomen, by which I discharged two gallons more of lymph; and to prevent the falling down of the womb, I caused the midwife to apply the strengthening fomentation pretty constantly all next night. From this time every thing went on well: She daily recovered her strength and flesh, and has since brought forth a healthy child, and she herself continued in good health. By computing from the birth of the child, it appears that she conceived three months before the paracenthesis was first performed, of which she had no suspicion herself; and notwithstanding she had taken several doses of sweet mercury, and other hydragogue purgatives, yet she brought the child to the full time.

*Four cases of the tumified ovary; by ALEX.  
MONRO, professor of anatomy in the university  
of Edinburgh, and F. R. S. Vol. V. art. 74.*

Hist. I. **I** Opened the body of a woman, aged thirty-six years, who had always been healthy till two years before her death, when her menses stopping, she imagined herself to be with child, and her belly gradually turned bigger, but after the tenth month

of her supposed pregnancy, entirely subsided upon a considerable discharge of water by the vagina. Soon after, her menstrua returned; and having undergone two or three periods of them, she was for a second time obstructed, with the other common symptoms of pregnancy. At the end of the ninth month, when she had the same appearance with other women in such condition, she was seized with bearing pains, and continued several days in labour, the fatigue of which wasted her strength so much, that she died. The belly appeared all over greatly distended, and at the under part I felt through the teguments a hard solid substance, distinct from all the other parts. The teguments of the belly being cut, I took out of the cavity sixteen pounds of a dark-brown coloured water, which was so acrid as to give a pricking pain to my fingers when soaked in it. From the hollow of the ilia I took out some spoonfuls of a white-coloured mucus. The internal surface of the peritonæum, and the external of all the bowels, were black; a spongy body of a lead-colour grew out, and received vessels from the ilium and part of the mesentery: the spleen was softer than ordinary; the convex surface of the liver was grown to the peritonæum; it appeared of a lead colour externally, but was red when cut. In the gall-bladder were six concretions, resembling small bramble-berries in their black colour and unequal surface. The inferior part of the belly, from a little below the navel to the ossa pubis, was filled with a large body adhering to the peritonæum and guts contiguous to it. The greatest length of this substance, was transversely from one os ilium to the other, and was twelve inches and two fifths; the breadth of it, from the ossa pubis upwards, was seven inches, its thickness five and a half. This being removed, I saw the bladder, womb, and right ovary, with its Fallopian tube, in a natural state, but could not discover the left ovary; and the left tube was cut away with the preternatural body above described, to which it firmly adhered. The blood-vessels were large on

the surface of the large body, which had two strong membranous coats, the exterior of which was easily dissected off, by a cellular substance being interposed betwixt it and the internal membrane, which contained many vesicles of different bulk, distended with mucus, or with a firm steatomatous substance ; and in some of the bags both mucus and steatoma were found. Hence it is evident, that this preternatural body was the left ovary monstrously overgrown and distended.

Hist. II. A woman of twenty-one years of age, while under the violent pains of labour of her first child, was very impatient, and tossed from one place to another : soon after, she was sensible of a weight in her right groin, which in the different postures of her body, removed always to the most depending part : however, as it was not attended with pain, she did not complain of it for some months, till the weight increasing, and a swelling and hardness being plainly felt in that groin, she asked advice of some physicians and surgeons, who applied external medicines, and gave internal ones, without her being at all relieved. A year and an half after her child-bed, she was greatly emaciated, and so weak, that she could not turn herself from one side to the other : her pulse was very low, but quick ; she had no appetite for food ; and she no sooner took any, than a feverish paroxysm was brought on, which terminated in a sweat : her thirst was perpetual, and scarce to be quenched ; she had constantly loose stools, and passed green and extremely fetid fæces ; she had no sleep in the night, and towards the morning had generally a large sweat ; her menstrua had not appeared for a long time. The right side of her belly was considerably swelled, and we felt with our fingers a hard tumor below the teguments, extended over that whole side, so that we could not be sensible of its terminating either at the bastard ribs, or os innominatum. This tumor pointed considerably outwards, about four inches below the navel, and as much to a side of the linea alba, at which place she had for some

some time before complained of the greatest pain : here the teguments felt thin, and a liquor fluctuated evidently below our fingers. An incision of an inch long was made into the part where the greatest appearance of pus was ; but only a great blast of wind followed the lancet, and the belly subsided considerably in an instant. The patient complained less of pain that night ; next day a large quantity of green fetid fæces, such as she had voided of a long time, was evacuated at dressing the wound, and the two following days the same kind of matter was discharged, but the quantity of it diminished daily, and the diarrhœa decreased in proportion, and she slept tolerably well all night. The fifth day after the incision, neither wind nor fæces came by the wound, but it discharged about four ounces of good pus. From this time we entertained hopes of her recovery, for the diarrhœa was quite stopp'd ; her appetite became better, her strength increased, the hectic fever and sweatings gradually diminished, and she slept well. An analeptic diet of gellies, broths, asses-milk, &c. was prescribed her, and cooling emulsions, with gentle opiates at bed-time were given. The ulcer yielded a moderate quantity of well digested pus, and the hard tumor of the belly diminished considerably ; so that in a fortnight we could pass the points of our fingers betwixt the ribs and its superior extremity, and betwixt the os innominatum and the lower circumference of the swelling. After a month's dressing we discovered a sinus going out from the old orifice, and extended under the teguments about four inches down and outwards, which was cut open, by which the surface of the tumor being laid bare, we encouraged the suppuration by gentle escharotics mixed with digesting balsams applied to the ulcer, and emollient suppurating pultices laid over the whole hardness. The discharge obtained by these daily wasted the tumor ; and in three months she seemed to be in perfect health, and refused to allow the ulcer to be kept any longer open, tho' there was still a hardness and swelling to be felt some

inches round the orifice ; so that we were obliged to cicatrize the ulcer. She continued about two years free of all complaints, when a new suppuration came on, and the small orifice made by the pus soon closing, her former bad symptoms gradually appeared ; and having struggled in a miserable way about three years from the beginning of her relapse, she died. The account the patient gave of the first rise and symptoms of her disease seem to lead one to judge the ovary to have been affected ; and the ovary being supposed monstrously swelled, adhering to the colon, or at least inflamed and suppurated, with the pus eroding a hole through the coats of the ovary, and the contiguous adhering colon, will readily account for all the phænomena in this case, which at first view seem attended with so many difficulties.

Hist. III.—aged twenty-six years, of a delicate weak constitution, in bearing her fifth child was put to most violent pain by her midwife pulling away the placenta indiscreetly ; which pain after some hours abated, and continued moderate till the second day after, when she complained of a most racking deep seated pain in her left groin : there was no hardness, swelling, or discolouring to be observed ; when she attempted to lie on the left side, the pain increased. Her pulse was quick, but weak ; her thirst excessive, her belly costive, and the quantity of urine small. The lochia were in sufficient quantity ; she was leaner and weaker than ordinary, and often complained of being faint. Emollient eccoprotic clysters were injected. She had almond-milk for drink, and farinaceous spoon-meats for food. When faint, she took of a cordial mixture ; the pained part was frequently fomented with emollients. The symptoms still encreasing, on the eighth day a large tumor below the muscles extended from the os pubis to the superior part of the left os ilium ; the skin above it was of a red colour. Her strength was so much spent she could scarce turn herself. Lying on either side tortured her so, that she was obliged to lie constantly on her back. She

breathed

breathed with great difficulty, and frequently fainted. Since therefore no hopes of resolving the tumor appeared, I applied a suppurative cataplasm all over it, continued her cordial, and every evening gave a small dose of opium. She remained in this weak condition for more than a fortnight, and at last was attacked with a vomiting and diarrhoea, which continued two days, till the purulent matter of the tumor eroding the teguments about two inches above the ring of the external oblique abdominal muscle, was discharged in a considerable quantity; after which the vomiting and diarrhoea stopped, the fever diminished, the pain abated, and she began to sleep calmly. The orifice of the ulcer being small, I proposed to enlarge it by cutting, which she refused, as she had done also opening the tumor, when I first was sensible of matter fluctuating in it. A tent, charged with basilicon and red precipitate, was introduced, and the cataplasm continued: some days after, two other small holes were made by the acrid pus at a little distance from the former, which gradually enlarged by the constant use of the escharotic powder; the liquor discharged by these orifices was sometimes purulent, but much oftener was a viscid mucus resembling the white of an egg. The orifices being kept open, and the suppuration encouraged, by continuing the method of dressing mentioned, the hardness gradually melted down, the bad symptoms went off, and she recovered strength, but for several months was often attacked with violent asthmatic fits; from which the pectoral oxymel of the Edinburgh dispensatory never missed to relieve her. Since this time she has enjoyed as good health as ever, and has born several children. The manner of this tumor's increase, its being confined to one side, without any stopping of the lochia, when the inflammation was violent, and without any discharge of pus by the vagina when the tumor suppurated, and the liquor evacuated by the orifices of the teguments being mostly mucus; all conspire to point out the ovary, and not the uterus to have been affected. Hist. IV. A gentlewoman, six weeks after

being delivered of child, complained of a pain and hardness at the lower part of the right side of the belly ; which afterwards spreading upwards, and to the left side above the os pubis, gave her great trouble : her menstrua had not appeared for some months after child-bed ; her urine was in small quantity ; she was constantly hectic, had no appetite for food, and was reduced to great weakness, and to skin and bone. An hysterick plaster besmeared with oil of amber had been applied to the tumor, and it was afterwards embrocated with a liniment composed of ointment of marshmallows, spirit of sal ammoniac, and oil of amber and aniseed. She had taken stomachic bitters for sometime, and used sal prunellæ dissolved in her ordinary drink. By these medicines her menstrua were brought to be regular, the urine came to be in good quantity, and the hectic fever seemed to be gone : but her appetite still continued bad, and after eating she was sick and uneasy. Her belly was so costive, that she scarce had a stool once a week : she was weak and lean ; the pain, hardness, and tension of her belly increased evidently. Tho' she slept much both in the night and day, yet she neither was strengthened nor refreshed, but always awaked fatigued. Before any swelling and hardness discovered themselves, she was sensible of a weight which changed its seat to different depending parts of the pelvis, according to the different postures of her body : the encrease of the tumor was from below upwards, and when once it became so large as to make the teguments of the belly prominent, the tumor fixed, and shifted place no more. The pain was obtuse, without any external redness or hardness in the teguments, and without fever, thirst, &c. The swelled part was frequently fomented with an aperient resolvent foment, and a common emollient cataplasm, in which was a considerable proportion of galbanum dissolved in the yolk of an egg, some marshmallow ointment, kept constantly applied to the part. In the mean time she continued the use of stomachic

stomachic bitters, with pills compounded of the stinking gums, and a small proportion of aloes: she used the lightest, easiest-digested, and least heating food, and drank whey, barley ptisan, or wine and water. By this regimen the tumor and pain were altogether removed, without any observable evacuation of matter any way. Since her recovery she has born children, and continues in a good state of health; only that she is sensible of what she calls a weakness in that side, and after travelling and riding, she feels pain where the tumor formerly was.

*Histories of collections of bloody lymph in cancerous breasts; by the same. Vol. V. art. 31.*

I. **A** Woman, aged fifty, had a large, hard, unequal tumor in the exterior side of her right breast, in which there frequently was sharp pain. In the hollow of her arm-pit was such another tumor. Both of them had increased very slowly. She was let blood, took a cooling purgative ptisan once a week, and lived on a spare cooling diet, which soon made the pains easier: some people however prevailed on her to apply warm suppurative cataplasms to her breast, which brought a fluctuation of liquor, which was believed to be a compleat suppuration, till it broke, when about four pound of bloody water ran out; after which the woman was in constant violent racking pain. Near the arm-pit there was a large opening into a very large hollow ulcer, from which there was a constant discharge of abominably stinking watery sanies. On pressing the sac, several spoonfuls of this liquor ran out; the woman was very weak, her pulse quick and low; she had a diarrhoea, night-sweats, and cough, and was kept constantly awake by the sharp pains of the sore. To ease her, tepid rose-water, with a little vinegar, brandy, and liquid laudanum, were injected into the sac frequently, and a cordial julep, with some laudanum, given her sometimes,

times, by which the pain was blunted during the two days more she lived. II. A middle aged woman, who had been two years sensible of a hard tumor in the upper part of her left breast; which notwithstanding different medicines she had taken, and the application of mercurial and gummosous plaisters, &c. had gradually increased to a great bulk. The cutaneous veins of the breast were turgid, the skin red, lancinating pains often pierced through the tumor, which was hard. At the time of the menstrual evacuation, the tumor became so large as to appear to be fixed to the ribs, upon plentiful blood-letting subsided, and was again moveable. Sometime after the tumor suddenly increased to a great bulk, with an increase of the pain: it then became soft in some parts, with a fluctuation of liquor, while the hard tubercles were felt at other parts: at length the whole tumor became red, soft, and full of liquor, and was opened at the lower part, when two pounds of a bloody water, which had no smell, were evacuated. Next day the pain was more violent; the wound had a cadaverous smell, and the superior part of the breast was still turgid with liquor. Another incision was made, and four pounds of bloody water being let out, the breast became flaccid. The pain increased violently, a gangrene appeared on all the skin of the breast, and next morning the patient died. When the breast was dissected, it was found to be an empty bag, without any tumified gland in it. III. A middle-aged woman, mother of several children, of a weak habit, subject to nervous disorders, having bruised her right breast, felt soon after a hard tubercle toward the exterior side of it, which increased considerably: she was with child: gentle deobstruents, with milk food, were recommended. The tumor grew bigger, a small hard knot formed below the edge of the pectoral muscle, and the axillary glands tumified and became hard. She miscarried in the sixth month, and had a plentiful discharge of lochia, but without any change of the tumors. As soon as she recovered from the abortion,

she

she took mild purgatives frequently; her menses returned in sufficient quantity at the regular periods; and she was more free of nervous disorders than she had been for a considerable time; the tumors however in her breast and arm-pit increased fast. After the whole breast seemed to be schirrhous, a fluctuation of liquor was perceived in several places toward the exterior and superior part of the tumor, and she complained of pricking pains in it. Soon after the breast swelled fast, the fluctuation was felt every where in it, and the veins of the skin became varicous, the uneasiness keeping the patient almost entirely from sleep. The teguments at last turning red, pointing, and thin, a lancet was pushed into a depending part of the breast, and three pounds of a blackish red lymph were allowed to run out; the further evacuation at that time was prevented, by a tent secured by a piece of adhesive plaister. The liquor had no smell, and when exposed to heat coagulated as the serum of the blood does. The patient was easier than ordinary all day. Next morning the skin appeared of a natural colour, and the veins were all contracted; a pound of the same sort of bloody lymph flowed out of the wound; after which the glandular part in the middle of that breast could be distinctly felt, and did not seem larger than the glandular part of the other breast; but the tubercle at the edge of the pectoral muscle, and the hardened axillary glands, were as large as ever. After the second dressing, the patient complained of a sharp pain near the wound, which being suspected to be occasioned by the tent touching some of the glandular parts, it was changed for one which would go no deeper than the lips of the wound. Betwixt this and next dressing, the lymph ouzed out at the sides of the wound, and had somewhat of a putrid smell. On the fourth day, the teguments were so thin, as to allow the original tumor in the exterior part of the breast to be distinctly felt, and it seemed rather larger than when it began to be concealed by the collection of lymph. On the fifth and sixth day,

there

there was little change, only the lymph became more fetid, and more of an ashy colour. On the seventh, the tumor of the breast felt softer. On the eighth, the quantity of lymph was less, and some tolerably good pus came out upon the lint. During the eleven following days, the appearances mended; for, the quantity of liquor flowing by the orifices decreased, its smell became less fetid, and its consistence nearer to that of pus: at the same time the tumor became less and softer. Afterwards frequent suppurations came on in different parts of the teguments; the glandular tumor increasing, the pain deprived the patient of sleep, &c. In two months more she died.

IV. A woman who had born several children, being again with child in 1733, the thirty-seventh of her age, observed the nipple of her right breast drawn inwards, so that when she was brought to-bed, the child could not suck it. When this child was a year old, the mother was frightened while her menses were on her, which put them away, and she never after had any return of them. In March 1739, she recovered from a dangerous fever; soon after which she was exposed to cold, and was violently in wrath, fear, and grief, receiving at the same time a bruise on her right breast. This shock confined her to her bed three months, and soon after it she perceived a small, painful, red tumor in the inferior exterior part of the right breast, which she neglected. In the end of July 1740, when I saw her first, the right breast was very large and hard, with such sharp pain that she slept none; the veins of the skin were varicous, and the nipple was shrunk out of sight; I however felt a fluctuation in it, and judged it much such a case as the preceding. Next day, July 31, I put a lancet in the inferior anterior part, where it was thinnest and most prominent, and let out eight ounces of a bloody lymph, without smell, but salt when tasted, which, held in a spoon over a candle, coagulated: a tent was put into the orifice, and secured by an adhesive plaster. She slept better that night, having less pain. August the first, four ounces

of the same sort of lymph ran out; the tumor was less, the skin was of a natural colour, and the veins were contracted: a little lime-water and honey of roses were injected tepid into the cavity of the ulcer. August the third, two ounces and a half of liquor ran out of the sore: this liquor was more of a purple colour, and less salt to the taste. It was dressed as formerly. The fourth, the tumor felt as if divided in the middle, and as if it was falling to pieces: her appetite was better, the pain less, and an ounce of liquor ran out; the dressings the same. The fifth, she underwent what the women call a weed, which resembles the paroxysm of an ague. This day the liquor evacuated at the sore was in greater quantity, thinner, darker coloured, more fetid, and when held in a spoon over a candle did not coagulate. By drinking plentifully of thin warm liquor, she had a profuse sweat, which carried off the weed. The sixth, the tumor was harder, the pain greater, the liquor fetid; a little digestive was added to the injection. For two months attempts were made to melt down the hardness, but it increased, became more painful, and wasted her. Her left breast then inflamed, was soon brought to suppuration, and cured in a few days. Soon after five small tubercles were observed in the right arm-pit, which disappeared in a few days upon a fungous excrescence thrusting out at the orifice in the breast of the same side, and some long tough substances coming out with the matter. Some days after, a soft equal tumor, about the size of a large nutmeg, without pain or discolouring, started up at the interior side of the affected breast, the fungus in the orifice having retired at the same time, and the lips retorting, with all the bad symptoms of an ulcerated cancer, which in a short time made her so miserable, that she submitted to the amputation of the breast. Some months after, the wound was firmly cicatrized, and she strong and well, some knots began to appear in the arm-pit, and at the edge of the pectoral muscle: she let them spread, till now she seems in the way of suffering all the miseries

of a cancer which cannot be taken away. The quick return of the癌ous knots in this case, calls to my remembrance a problem which I have often wished to have a solution of, Whether ought癌ous tumors to be extirpated, or ought the palliative method only to be followed, when they cannot be resolved? The resolution of a cancer is very rare, but I have seen two such tumors cured. Of near sixty cancers, which I have been present at the extirpation of, only four remained free of the disease for two years; three of these lucky people had occult cancers in the breasts, and the fourth had an ulcerated cancer of the lip. The disease does not return always to the part where the former tumor was taken away, but more frequently in the neighbourhood, and sometimes at a considerable distance. Upon a relapse, the disease is more violent, and makes quicker progress than in others on whom no operation has been performed. If an occult cancer is occasioned to a young healthy person by a bruise, or such other external cause, the hope of escaping a relapse, would persuade us to extirpate it.

*An uncommon tumor round the lower part of the bladder; by Mr. JOHN MACGILL, surgeon in Edinburgh. Vol. V. art. 71.*

**A**N old man, subject to fits of the gravel and a dysentery, who had passed some small stones, was seized with a total suppression of urine, without any fever, or other violent disorder. Variety of medicines was used; catheters of several forms were introduced into a cavity beyond the sphincter, from which sometimes a very small quantity of clear liquor ran; but then the end of the instrument was stopped by some soft obstacle, and no urine came away, while his bladder was gradually stretching to a very great extent, and the patient was in very violent pain. To evacuate the collected urine, I plunged a trocar thro' the linea alba and bladder, and took away three pounds

pounds of fetid acrid urine of a deep brownish colour. The obstruction however at the neck of the bladder continuing, he died. Both the kidneys appeared to have a flabby loose texture. At the beginning of the left urethra were several bloody spots, which looked like the orifices of ruptured or distended vessels. At its exit from the kidney, it was large enough to contain a chesnut, and was dilated as far down as the bladder. The bottom of the bladder was as high as the navel, and carried the septum of the peritonæum along with it. The bladder was of a black colour, and in a gangrened state; its lower part was surrounded with a firm white tumor, like a cartilage, which was continued two inches up from the prostrata, being an inch thick every where round. A particular excrescence rose forwards from the superior extremities of the back part of this tumor an inch and a half, and thrust the coats of the bladder before it, till they were closely applied to the interior part of the bladder, so as to form a partition between the upper and lower part of the bladder. In the upper one was contained a pound and an half of a putrid bloody liquor, and ten small stones, the biggest being about the size of a large hazel-nut.

*A stone in the bladder, formed on a needle; by  
Mr. ANDREW BROWN, surgeon in Dalkeith.  
Vol. IV. art. 16.*

**A** Girl began at two years of age to be afflicted with cholic pains and difficulty of making water, which were commonly removed by evacuations and other medicines. When three years of age, she felt severe pains about the regio pubis; she had partial obstructions of urine, and frequent vomiting, but never complained of her back. These symptoms not yielding to her former medicines, I put her into a semicupium, which, with injections, relieved her. Her pains and obstruction of urine increased all the following year; the warm bath only gave her relief:

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In February, 1735, when she was four years old, she complained of great pain in the pudenda, putting her fingers there, as if she would extract somewhat. The external parts swelled greatly, and inflamed. The right labium felt as if liquor fluctuated under it; and on the posterior part of the rima there was some pus. I fomented the parts with warm milk, and applied an emollient pultice. Next day the quantity of pus was greater, and she easier, but still aimed at extracting what pained her. The same applications were continued. On the second day, her mother observed a white hard substance in the passage, and the child was miserably tortured with pain. In the evening, while a fomentation was applying, a stone fell into the bason: it weighed then more than half an ounce, and grew round a needle, the ends of which stand out. See plate XII. fig. 1. where it is represented of the natural size, with the ends of the needle A and B standing out.

*An account of a proincidentia uteri; by ALEXANDER MONRO, professor of anatomy in the university of Edinburgh. Vol. III. art. 17.*

**A** Girl not three years old, after a fever, had a considerable discharge of blood by the vagina for three days, after which she seemed in good health twenty days, then complained of a pain in her belly, loins, and thighs, and had such another evacuation. The child suffered regularly such returns every three or four weeks, without any considerable loss of strength, or decay of her body, till May 1729. But during the third monthly evacuation, which was at the end of September 1728, her mother observed a small swelling rising out from the orifice of the vagina, which disappeared as soon as the flux ceased. This tumor however came out larger at each period; but upon the child's being kept in bed three or four days, and the flux ceasing, always disappeared, till May, when it came out of a considerable bulk, and did not

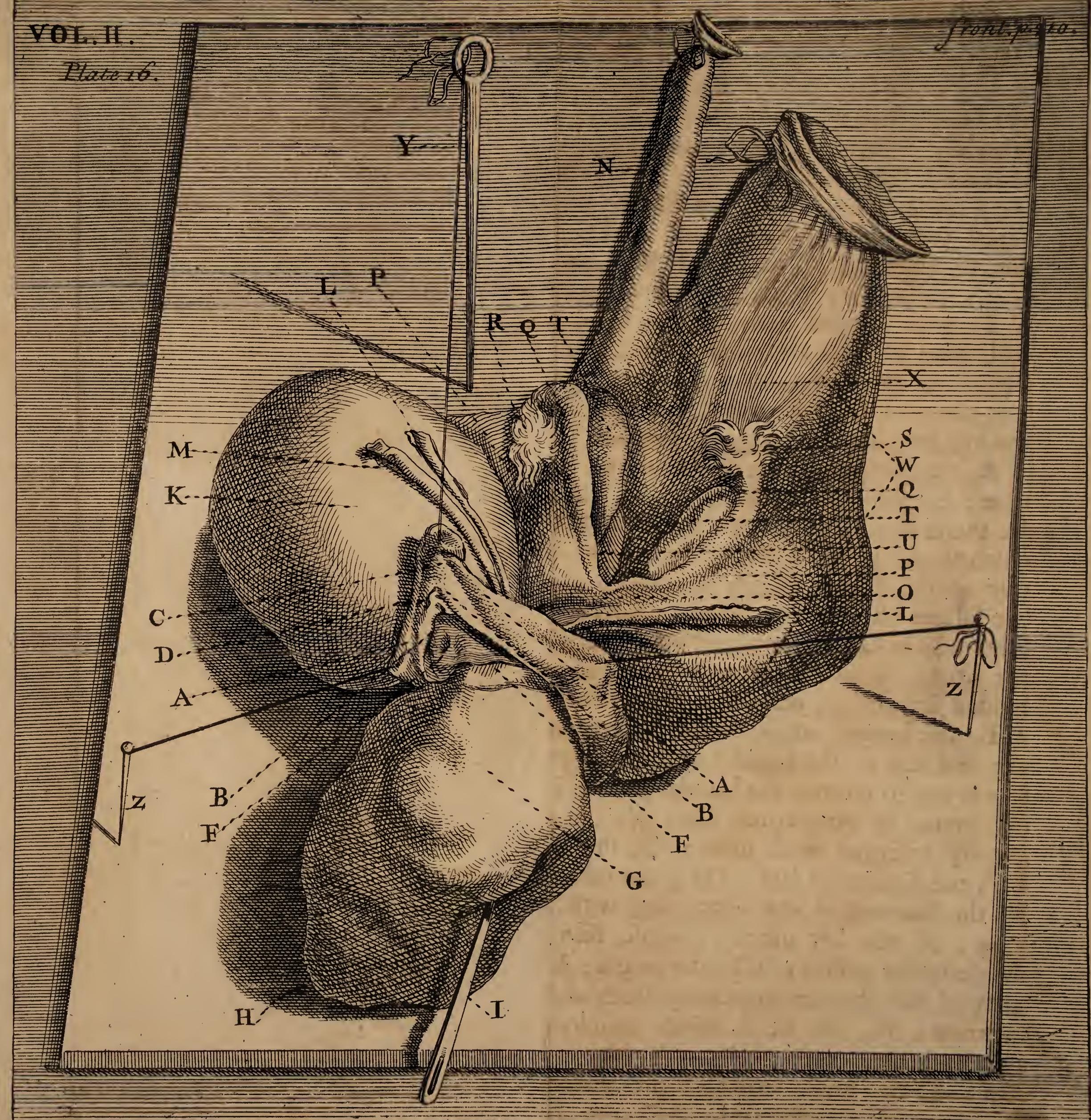
return as usual. From this time, instead of periodical evacuations of blood, there was a perpetual dropping of white mucus from a hole in the lower part of the tumor, sometimes in large quantities. I examined the parts, and found a tumor G, (see plate XVI.) hanging out at the vagina, as big as a hand-ball, the neck of which, Y, was about an inch diameter. At the lowest part, H, the tumor was largest, and of a faint leadish colour. Behind the most prominent part of it, was a hole of a quarter of an inch diameter, by which a probe, I, was introduced some inches, before it met with resistance, when the child complained of pain. Round this orifice the tumor felt hard and firm; but a little higher, where it was largest, it was softer, seeming to be composed of a cellular substance. At this place scales had frequently formed and fallen off. The neck, Y, of the tumor was smooth, of a shining red colour, solid and hard: I introduced a probe betwixt this neck and the sides of the vagina two inches upwards, and turned it all round the circumference of the neck. The clitoris, D, nymphæ, BB, and orifice of the urethra, E, were natural enough. The child could scarce sit or walk, but lying a-bed was easy; her complexion was pale, her body small, otherwise she was healthy. The disease being judged to be a procidentia uteri: I attempted to reduce it, but could not accomplish it; external applications and evacuations were tried without success, the tumor daily increasing. At last she grew hectic; and the tumor gangrened in its external surface, and by the gangrened parts falling off, was reduced to half its bulk. Ten days after, November the seventh, she died. On opening the abdomen, the bladder, K, was full of urine; the left ureter, M, in a natural state, but the right one, N, was distended by urine to four times its natural diameter; and the kidney from which it came, was larger, softer, and paler than the other, but without any appearance of folliculi, or vesicles. The urine had certainly been retained in the bladder by the neck of the preternatural procidentia.

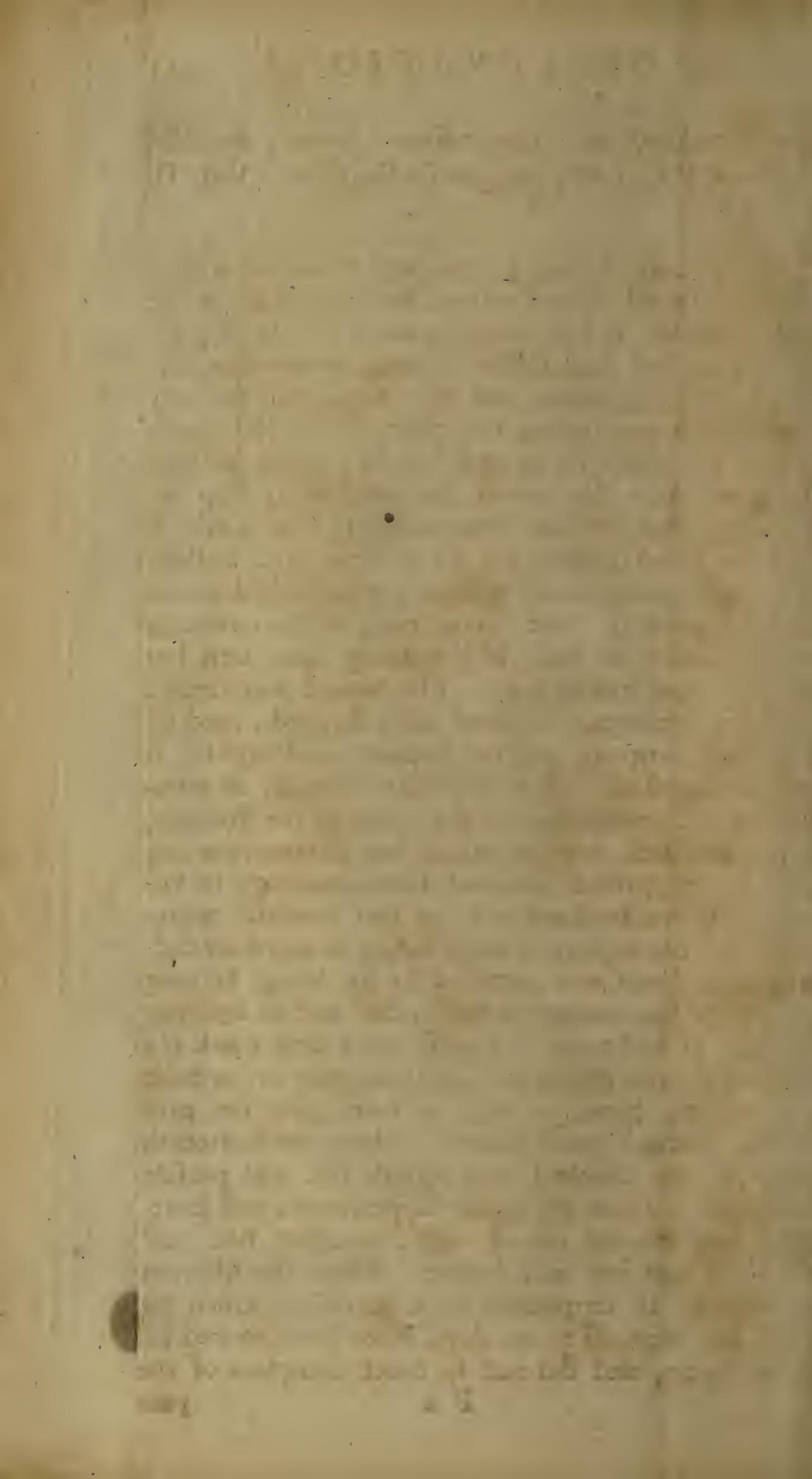
pressing on the urethra, and the distention of the right ureter was owing to a steatomatous body, U, more than an inch long, and seven tenths of an inch broad, which lay behind the ovary and ligamentum latum, and reached to the cervix of the bladder, to which it firmly adhered, and through its exterior extremity the ureter passed. There was scarce anything of the uterus to be seen till the bladder was reclined over to one side, when a small part of its fundus, O, appeared. The tubæ Fallopianæ, Q Q, were nearly perpendicular to the uterus; and the ovaria, T T, were situated contiguous to them. The figure will better explain the situation and connexion of all the parts, than any description, and give a distinct idea of a true genuine procidentia uteri, covered with the vagina, and without any inversion of the womb. A A, the two great labia pudendorum; B B, the nymphæ; C, præputium clitoridis; D, glans clitoridis; E, the orifice of the urethra; F, the neck of the procidentia, as it came out at the vagina; G, the left side of the tumor, which was much diminished by the falling off of the gangrenous parts; H, the right side, which had no parts cast off; I, a probe put into the uterus by its internal orifice; K, the bladder distended with urine, and reclined over to the right side; L L, the jagged edges of the peritonæum, both on the left side of the bladder and of the pelvis, where it was cut to remove the bladder to one side; M, the left ureter of the natural size; N, the right ureter, greatly enlarged with urine; O, the fundus uteri; P P, the ligamenta lata; Q Q, the tubæ Fallopianæ; R, the fimbriæ of the right tube, with its orifice in view; S, the left morsus diaboli, seen on the side averse to the orifice; TT, the ovaria; U, the extremity of the steatom appearing from under the right ovary; W, the thick tunica cellulosa at the side and back-part of the pelvis; X, the intestinum rectum; Y, the probe to which the thread supporting the mons veneris was tied; Z, the pins to which the threads stretching the labia were tied.

VOL. II.

Plate 16.

front plate.





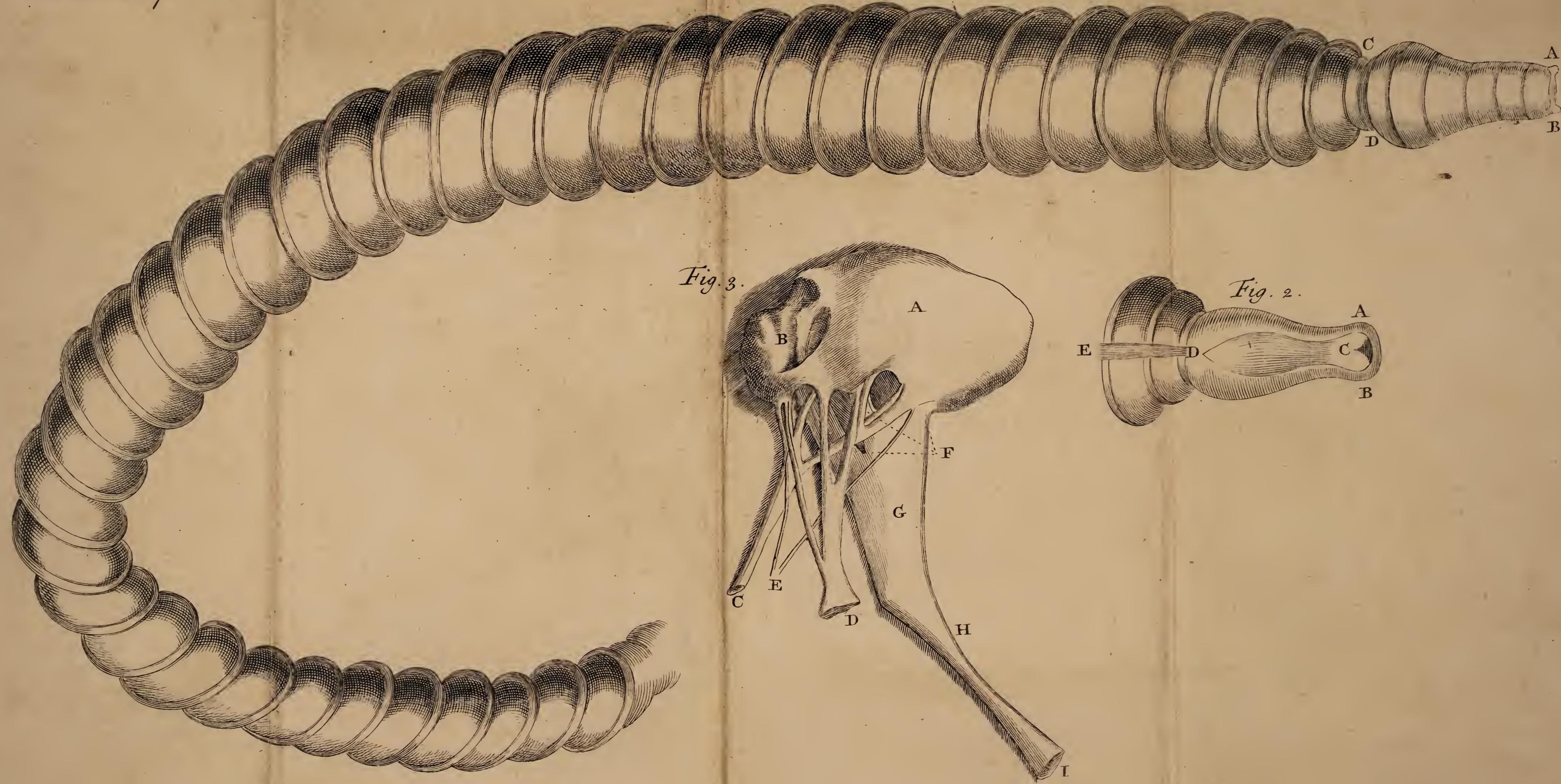
*An account of an extraordinary worm; by Mr. JOHN PAISLEY, surgeon in Glasgow. Vol. II. art. 26.*

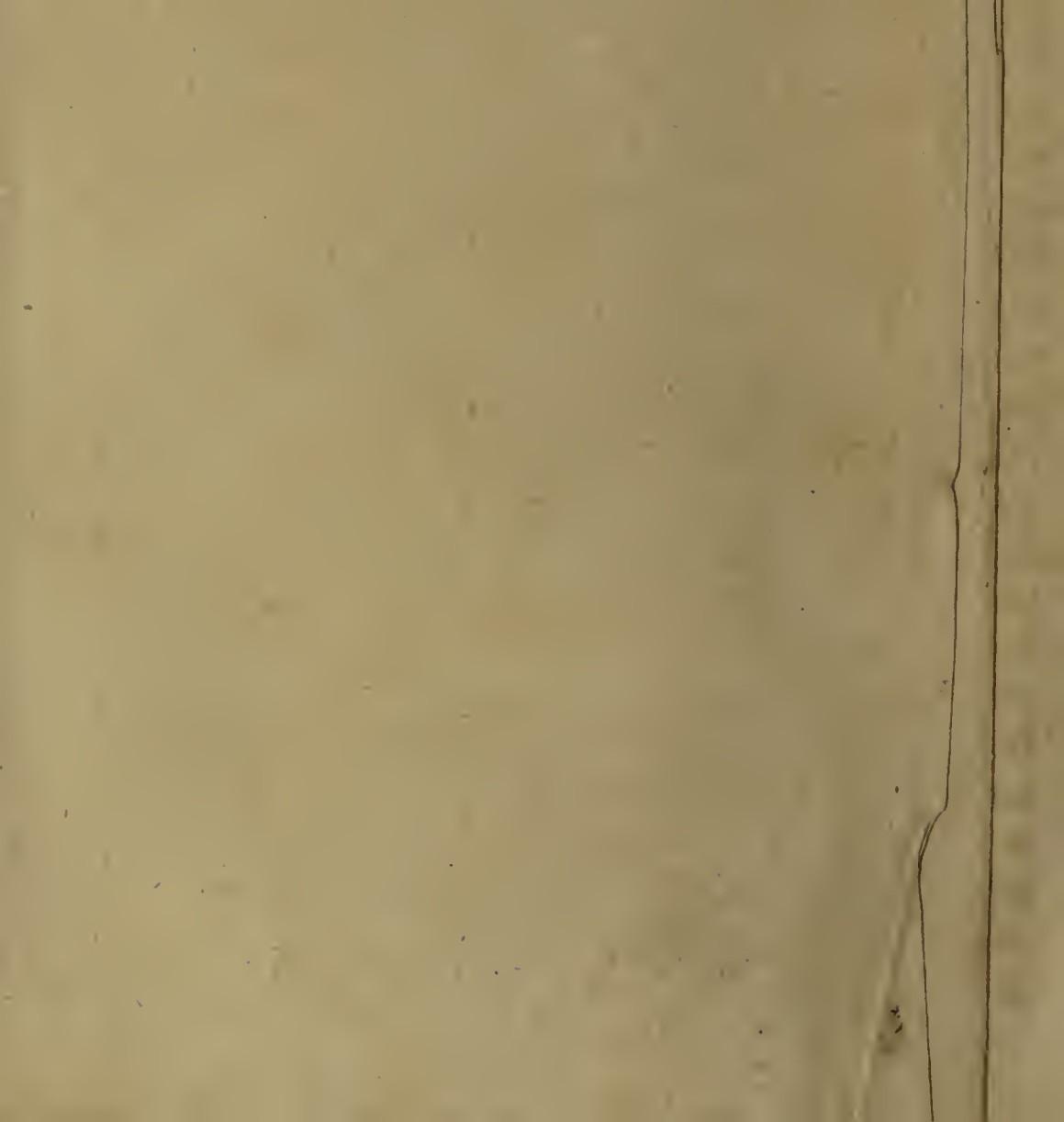
**I**N February, a young man was wounded with a small sword, which entered four inches below the right nipple, and a little towards the back; the wound reached four inches slanting downwards, betwixt the teguments and the ribs, without any signs of its penetrating the cavity. He lost much blood, by which he turned faintish: when he held his hand upon the wound, he could easily stop the bleeding; but the pain soon obliging him to take it off, the blood gushed out for a little time briskly, then ran trickling down, as from any such small wound in the teguments. He fainted early in the morning, and lay above an hour with nothing upon him but his shirt and riding coat. The wound was dressed with dry dressings, the blood easily stopped; and by a gradual compress, and the scapulary and napkin, it was bandaged up. The third day at night, he complained of a violent pain in the region of the stomach, and in the back opposite to it, but of none near any part of the wound, and had some reachings to vomit. He was confined to a low diet from the beginning, and having a great cough before he was wounded, which no doubt was increased by his being so long naked, he was ordered linctuses, &c. and an anodyne draught at bed-time: his pulse was a little quick the first three days, but on the fourth the pain in his back was entirely gone, as was the fever, and the pain in the stomach much abated. About the fourteenth day, he was attacked with aguish fits, and profuse sweatings, without any regular appearance; and sometimes was thrown into strange convulsive fits, tho' he never had any such before. About the fifteenth of March, all terminated in a jaundice, which by medicines went off in ten days, when he recovered his colour again, and did not so much complain of the

pain in his stomach. He had got little or no passage by stool from the time he first complained, without the help of clysters; but on the twenty-fourth of March, he had a kind of looseness, and passed a great quantity of fæces which looked like boiled blood, and some pure blood, complaining much of the pain in his stomach. On the twenty sixth, he passed a worm a foot and a half long, and an inch and a half diameter. He lost with it, to appearance, some pounds of blood, and for several days after passed some grumous blood. The worm was dead when he passed it, and made up of a great many rings like the earth-worm; the interstices between each were rather larger than they appear in the figure, and were of a dark chocolate colour, the joints of a livid flesh-colour: the head was smaller than the body, tho' made up of joints, and resembled a duck's bill. It was flatter on the under side with a kind of band, running all along from the neck, which joined the head and body together to the tail, into which all the rings and joints seemed to terminate. It had a triangular mouth like the horse-leech. After he passed it, he grew gradually better, tho' frequently complaining of pains in the region of the stomach all the time. Plate XVII. fig. 1. shews the upper side of the worm; A B C D, the head; C D, the neck, by which it was joined to the body. The smaller rings represent the hollows, formed by the joining of the protuberant annular surfaces. Fig. 2. represents the under side of the head, and two rings of the body; A B C, its triangular mouth; D E, part of the band which runs along the whole body on its under side.

*The history of an extraordinary empyema; by Mr.  
JAMES JAMIESON, surgeon in Kelso. Vol. V.  
art. 32.*

**A** Woman of remarkable strength and vigour fell on a stone, which struck her under the right scapula; about four months after, she complain'd of pains,





pains, not only in the part struck, but internally thro' the whole thorax. In a little time after, the pains increasing, she took to her bed ; a small white tumor appeared upon the place where she had received the blow, which gradually increased, with a great difficulty of respiration, a constant diarrhoea attended with a tenesmus, colliquative sweatings, great thirst ; her pulse was hectic, and she was four months gone with child. The tumor was of the same colour with the rest of her skin, very hard, and as big as a child's head, which obliged her to sit night and day in a bended posture. I plunged a scalpel some inches deep into the center of the tumor ; about four pints of matter were evacuated in two minutes, when the discharge was stopped, for fear she should sink under so large an evacuation. A suitable bandage and dressings being applied to the wound, an anodyne cordial was administered, and a decoction of the woods, with a little bark in it, acidulated with lemon-juice, was ordered for her common drink. She passed the next night better than many of the preceding : her stools were mixed with white and well-digested pus, like that which came from the wound ; the sediment of her urine was of the same nature. When the dressings were removed, the same quantity of pus issued as before, notwithstanding which the tumor continued. The third day, her pulse was better, her respiration less difficult, she had slept tolerably, tho' in a sitting posture. The dressings being removed, the same quantity of matter flowed as before ; the tumor considerably lessened ; and a large opening was felt thro' the wound betwixt the seventh and eighth true ribs. On the fourth day, every symptom appeared more favourable ; the evacuation nevertheless was as great as before, only now the matter drilled down her back, and appeared to be exhausted. She was now dressed with digestive mixed with balsam of Peru, and the compresses were wet with brandy. This night she lay down with the orifice depending. In the morning she was cheerful, had slept well, her pulse was free,

very little quick ; the diarrhoea continued, but with less of the tenesmus ; her stools and urine were not so purulent as formerly ; the dressings and bed-cloaths were soaked with matter, but the discharge, upon removing them from the orifice, was but small. On the sixth day, she was feeble, dispirited, and languishing, from an abortion : she had a coldness and rigidity in her limbs, frequent faintings, some slight rigors, yet the lochia flowed, tho' in small quantity. She took frequently some cordial drops in warm sack-whey, and recovered daily. The wound was now dressed only once or twice a week for eight weeks, and after a small exfoliation from the ribs, a firm cicatrice was procured. She has continued ever since free of all complaints, except an ague, and has born three children.

*Colics for six years, from a concretion formed on a plumb-stone lodged in the guts ; by Dr. THOMAS SIMSON. Vol. I. art. 32.*

A Girl, twelve years of age, complained of pains fixed in one part, about two inches below the short ribs of the left side, somewhat nearer to the back-bone than to the navel, where they had kept for three years out of six, during which she had been subject to colics. She never missed the pains some hours after eating pease, or any summer fruits, or any thing that was sour, or of hard digestion, all of which, for the most part, produced a loose belly, which carried the pain off ; but if this did not happen, they were obliged to procure some stools by purges or clysters, which always succeeded till this attack of the disease. This fit, which was reckoned to have been occasioned by drinking small ale upon the turn, was accompanied with a violent constipation ; the pain was so great, that she cried out very much, holding the affected side as firm as she could with her hand. She threw up every thing immediately after swallowing it ; her pulse was in the mean time of

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the natural strength and quickness; clysters had little effect on her; and tho' she took purgatives in different forms, and clysters were repeated some hours after, yet they never answered. Several other remedies were used at the same time, but all to no purpose. The pain and vomiting seldom left her for three weeks together, in which time she was greatly emaciated. Early in a morning, observing her to vomit a great deal of bile of a deep tincture, I desired she might drink down a pint and a half of tepid water, to provoke her to vomit, and to repeat this six or seven times: after she had vomited five or six times, she had a copious stool; and in passing the fæces, she was sensible of something bulky and hard among them. On searching them, the ball drawn in plate XI. fig. 3 and 4, was found. It is of an irregular cubical shape, with a deep depression A (fig. 3) in two of its sides, which are opposite to each other; it was four inches in circumference, and weighed five drams at first, tho' now it is much lighter: it seems to be compounded of threads matted together, and disposed into layers. (See fig. 4. which represents the two parts of it when it was cut thro' the middle.) In the middle of it, there is a plumb-stone, B, the flat sides of which answer to the depression in its external surface; C, shews the cavity in which the convexity B of the plumb-stone was lodged. She has had but two fits these eight months; the one was severe the tenth day after passing the ball, which was carried off by bathing and bleeding; a second she was seized with half a year after, from cold, which went off without medicines.

*An abscess in the cerebellum, and rupture of the lateral sinus; by Mr. JOHN DOUGLAS, surgeon in Edinburgh. Vol. V. art. 53.*

**M**R. G. B. aged nineteen years, was taken with a pain and heaviness in the forehead, for which he was plentifully blooded, vomited, purged, blistered,

tered, &c. notwithstanding which, he sat always with his head leaning forwards, otherwise his pain increased. His pulse was good ; he had no convulsions ; his appetite was bad ; his sleep broken, and in turning his eyes quickly he felt an increase of pain. After being three months in this condition, he became free of pain in an evening, eat the wing of a fowl, drank a glass of strong ale, and slept well all night ; next morning, he called for tea, and immediately after seemed to faint. I opened a vein in his arm, but no blood came, and in two minutes he died. When his head was opened, two ounces of perfect pus were found in a suppurated tumor in the middle of the cerebellum, and an opening of the left lateral sinus of the dura mater, out of which a considerable quantity of blood had flowed.

*Extravasated blood in the pericardium; by Dr. CHARLES ALSTON, P. B. and M. M. in the university of Edinburgh. Vol. V. art 56.*

A Tall robust man, thirty-eight years of age, sober, regular, and delighting much in reading, who had enjoyed a good state of health all his life, unless being easily put into a sweat by exercise, and having rather a frequent than full respiration, be esteemed faults in his constitution, catched cold about the end of August 1734, and had a mild cough, for which he took sugar-candy and such like family pectorals. September the twelfth, he was seized with violent pains in one of his kidneys, sickness and reaching to vomit ; his urine was in small quantity, and high coloured. I ordered him to be blooded, to take a clyster with turpentine, the liberal use of the decoctum ad nephriticos, and an opiate at night. He neglected the bleeding, but took the other medicines ; was soon free of the pain, and never after had any nephritic symptoms. The cough continuing, he took sperma ceti and a vomit. Finding no advantage from them, he again asked my advice. I ordered

ordered ten ounces of blood to be let, and a pectoral electuary. Two days after, he took a vomit, and a paregoric at night. Next day his shoulders were blistered, and the electuary continued. The following day he took a dose of rhubarb; after which I ordered scillitic pills to be taken thrice a day. By the use of these medicines, his cough became much easier, and he went abroad. He follow'd his ordinary business from the beginning of October to the sixth of January, during which time he did not sleep as he used to do; his appetite for food was little, he was pale, had a weight on his spirits, was put into sweats more easily than ordinary, and seemed to force a cough to free himself of some oppression on his breast. Every morning he coughed up a whitish defluxion. His urine was sometimes plentiful, at other times scanty; his pulse and respiration pretty natural, rather frequent than full. In December, when he was easier than at any other time of this period, a whizzing noise was to be heard in his breast after a full exspiration. I saw him frequently during these three months, and prescribed for him as the symptoms were urgent; but the medicines had little effect in changing the disease to better or worse. January the seventh, 1735, he was alarmed with coughing blood among his defluxion. There were only a few small streaks of blood among a great deal of viscid matter; but his pulse was grown more frequent and full, and his other symptoms were increased. I caused him to be let blood, put him on a milk-diet, and gave him some troches of Japan earth. His pulse becoming weaker, tho' more frequent daily, and the oppression increasing, a vesicatory was applied to his back, on the thirteenth. A variety of medicines were given, but without success, his pulse becoming gradually weaker, but its quickness and the oppression at his breast increasing. He complained of no palpitation at his heart, his pulse did not intermit, and he was not faint. In the morning on the twenty-first of January, his pulse could not be felt, yet he  
put

put on his cloaths, and sat in a chair till five o'clock in the afternoon, when, complaining of pain and coldness in his legs, he bathed them in warm water, and turning drowsy, went to bed, when he fell into a calm soft sleep, in which he expired about eight in the evening, without a groan or shivering. The corpse was fair, plump, and well-made: the lungs were contracted more than ordinary, and in several parts adhered to the pleura on both sides; both cavities of the thorax contained a good deal of water; the pericardium was of a monstrous size: being opened, somewhat more than three pounds of coagulated blood and serum were taken out of it. We could discover no aperture in any of the large vessels; but on pressing the heart, a bloody serum ouzed out from a great many small orifices on its surface, and principally near its basis. The heart and its large vessels being then laid open, some polypous concretions were found in the pulmonary artery, and in the aorta, but so small and tender, that they seemed to have been formed not long before his death.

*The dissection of a cataractous eye; by ALEXANDER MONRO, P. A. Vol. V. art. 54.*

I Dissected the eye of a man which had been often examined by several, who unanimously declared the man to labour under a cataract. The cornea was pellucid, without any opacity; the aqueous humor in due quality and quantity; no fault in the iris; the opaque crystalline lens inclosed in this capsula, was not so large as it is commonly in a sound eye, and, instead of being circular, was of a triangular form; its anterior convexity was scabrous and unequal, of a yellow white colour, the yellow cast appearing much stronger after the eye was opened. The connexion of the crystalline inclosed in its capsula to the ciliary circle and vitreous humor, was weaker than usual; the posterior convexity of the crystalline was smooth, but of a more yellow colour than the anterior part of this

this lens. Upon making an incision into the capsula, the lens separated from it, without any perceptible connexion between them. The capsula was opaque, but of a whiter colour than the crystalline itself. The crystalline appeared of the same consistence all through; without either watery or gelatinous exterior substance, or being harder or firmer towards the center. It was composed of a great many strata of a greenish yellow substance, turning more of a green cast nearer the center, which was no firm nucleus. The vitreous humor was clear and transparent ; no fault in the retina ; the colour of the internal surface of the choroid coat was not so deep as usual.

*A mania from a callous pia mater ; by Dr. EDWARD BARRY, physician at Cork, and F.R.S.*  
Vol. IV. art. 26.

**A** Gentleman, twenty-five years of age, of a melancholy aspect and temper, complained four years ago of a weight increasing over his head. About six months ago his temper was much changed, and soon after he became distracted, attempting to destroy himself and others. This disorder returned frequently upon him. For some time past, he had frequently paroxysms of a fever, which lasted three or four days. After many other methods of cure had been attempted, the operation of the trepan was performed. The day after he walked about his room ; next day he could not be prevailed on to rise; his pulse became feverish, a slow delirium and stupor came on, with spasms in his limbs, which increasing, he died on the tenth day after the operation. Nothing preternatural appeared in the dura mater; the pia mater was of a colour between green and yellow, and a large suppuration under it; it was hard and callous, and in most places twice the thickness of the dura mater. There was no appearance of vessels in it, and it cut like soft horn. The cortical part of the brain, which this covered, was whiter than usual, with

with few blood-vessels ; the pia mater, contiguous to the falx, appeared in the same morbid condition ; the ventricles of the brain were large and distended with water.

*An account of the sides of the os uteri being grown together in a woman with child ; by Dr. THOMAS SIMSON, professor of medicine in the university of St. Andrew's. Vol. III. art. 19.*

A Woman, forty years of age, narrow between the ossa pubis and os sacrum, had been four days in severe labour of her first child. The child appearing to have been dead for some time, I opened its head and extracted it, but with great difficulty, its shoulders and haunches being too large to pass. During some days after her delivery, she passed many small rugged stones ; and at length, after her urine had been stopped some time, her husband drew out of the urethra a piece of thick membranous substance, three inches in length, and in some places two inches broad. One side of it was covered with a crust of small sharp stones, the other was inflamed and bloody, which made me judge it to be part of the coats of the bladder ; and I was confirmed in this opinion, by introducing a catheter into the bladder ; for whenever it touched certain parts of the sides of the bladder, blood came with the urine. The patient continued a long time with a plentiful suppuration about the pudenda, but we did not suspect that the pus came from the internal parts. Three months after her delivery, she grew again with child, and pains took her at the usual time. She continued two days and an half in hard labour. I examined her, and found that the os tincæ had not only not yielded, but that the sides of it were grown together, without any vestige of a passage ; whereupon it was agreed to make an incision into the os uteri. Upon dilating the vagina, we could distinctly see the cicatrice of the grown-together parts, and could have easy access to divide them, which I did

did by an incision at least half an inch deep, before I pierced through the substance of this part of the womb. Through this wound I touched the head of the child, and felt the whole circumference of the passage hard like a cartilage. I made several incisions into this cartilaginous ring, without the least appearance of blood, and the patient had no trouble, except what the dilatation of the vagina gave her. The labour continuing, the passage dilated a little, but not so much as to give any hopes of allowing the child's head to pass, and therefore I was obliged to bring away this child as I had done the former. There was no liquid with the child, nor did any blood follow it; it was quite supple, and had a white chalky crust over its whole body, so that we were convinced it had been dead some time. The want of waters was some surprize, till I recollected, that in the time of labour, she told us they were passing; at which time I found, that what she called the waters, passed by the urethra, which opened externally by three different orifices. This, with her having lost such a portion of the bladder formerly, and her being subject to the gravel, gave me ground to think that there was some communication between these passages and the cavity of the womb above the os tincæ. My patient, after being put to bed, was seized with a pleuritic pain, which appeared to be the cause of her death, which happened in twenty-four hours after.

*Coagulated blood extravasated upon the uterus, and  
the thickness of the womb, in a laborious birth;  
by Mr. JOHN PAISLEY, surgeon in Glasgow.*

Vol. IV. art. 33.

**A**uthors having differed as to the thickness of the uterus of a woman with child, the following history of a woman who died in child-labour, where I had an opportunity of observing the thickness of it, may help to clear up the dispute.—I was called to a woman

woman in labour, about a midde age, of low stature, and pretty fat, who had born several chiloen, and found her in an exceeding low condition, with cold sweats, severe faintings, her extremities cold, without any pulse, and unable to utter one word. She had been several days in labour, and all along the mid-wife imagined that affairs were in a very good way, and the child in a right posture, though, after the waters broke, the child's head had never advanced: From the first day she scarce made any water; she had taken a strong stimulating diuretic medicine, which not succeeding, a stronger was given, but proved alike unsuccessful. The woman's strength decayed continually, and the sixth day she died. Next day I opened her, and after I had cut the teguments, and laid them back, I was surprized to meet with a black membranous body, like coagulated blood (which it in reality was) covering all the fore-part of the uterus, tho' distended so much with the child. This I easily separated in one cake from the uterus; it was about a foot and a quarter long, a foot broad, and a quarter of an inch thick. I could not observe the least appearance of any ruptured vessels in either, after the most accurate search, nor was there one drop of blood in any other part of the cavity of the abdomen. When I had removed this coagulated blood, I observed a large sac or bag full of water, lying along the side of the uterus above the intestines, and reaching as high as the kidney on the right side: upon feeling it all round with my hands, I found it was loose at its superior part, and appeared to come out from the pubes, where only it had an attachment. This proved to be the urinary bladder, distended to a vast bigness, and thrust to one side by the pressure of the uterus on the fore-part of the abdomen; it contained eight pints of urine. The uterus was closely contracted upon the child, and in opening it from the fundus to the cervix, I found it at least half an inch thick in the thinnest part, tho' a good deal more at its fundus, where I observed the sinuses so large, as easily to admit

mit the end of my little finger. The placenta adhered to the fore-part of the fundus; the child had fallen down into the passage, with its head a little obliquely to one side, so that part of the frontal and parietal bones of the right side rested upon the os pubis and neck of the bladder.

*The description of a forceps for extracting children by the head, when lodged low in the pelvis of the mother; by Mr. ALEXANDER BUTLER, surgeon in Edinburgh. Vol. III. art. 20.*

PLATE XVIII. fig. 4. represents this instrument seen obliquely, of one third of its real dimensions. A, is the extremities of the blades, made more concave in the middle than is necessary to fit them to the surface of the head of the child, to hinder them from compressing the temporal arteries; B, is the convex side of one blade; C, the concave surface of the other; D, the hinge where the two blades cross; E, is a large flat button of a screw, which serves as an axis to the hinge, and can be taken out at pleasure; F, a second hinge, which may be used instead of the first; G G, the handles. When this instrument is to be used, the axis of the hinge is to be taken out, and each blade being directed by one hand in the vagina, is to be introduced separately along the side of the vagina, and betwixt it and the side of the child's head, as far as immediately above the ears; then the two blades of the instrument being crossed, the axis is to be put into the hinge, and the child extracted. Mr. Chapman, in his essay on the improvement of midwifery, justly observes, that the moveable axis is more troublesome than useful, and therefore may be omitted, as the instrument is manageable without it.

*A ring-scalpel for assisting the delivery of women in child-birth; by Dr. THOMAS SIMPSON.*  
Vol. V. art. 39.

THIS instrument consists of two parts (see plate XIX. fig. 1.) the broad ring A, and the short scalpel B riveted into it. The ring is made so large that it can pass the first joint, and no further, of the fore-finger ; and the scalpel is about an inch in length, and one third in breadth, smooth and blunt along the upper side, sloping to a sharp point. After being satisfied of the bigness of the head of the child, that it must be brought away with an instrument, I examine its situation with my hand, and where the suture lies, and then put on the ring on my fore-finger, with the scalpel, with its edge facing the palm, so far up, that it is quite over the last joint. In this situation, bending my finger at the middle joint to a right angle, the edge of the scalpel becomes parallel to the first phalanx, and is secured from doing any harm, while in this posture I slide my hand up, directing my other fingers extended towards the sutures fixed upon for the incision ; and having found them, the thumb and these fingers hold the head, while between them I stretch the fore-finger, hitherto bended, over the sutures, and with it press in the scalpel, cutting through the pericranium and dura mater, and slitting them so far, as to let in my fingers. In doing this, because the ring is apt to be drawn off, I bend a little the last joint against the ring, and so keep firm during the operation.

*The description of a pessary; invented by the same.*  
Vol. III. art. 18.

THE first step towards a cure of a procidentia uteri, is to reduce the uterus to its natural situation, and to keep it there by means of the instruments called pessaries. To avoid the many disadvantages attending the use of the common pessaries, I contrived

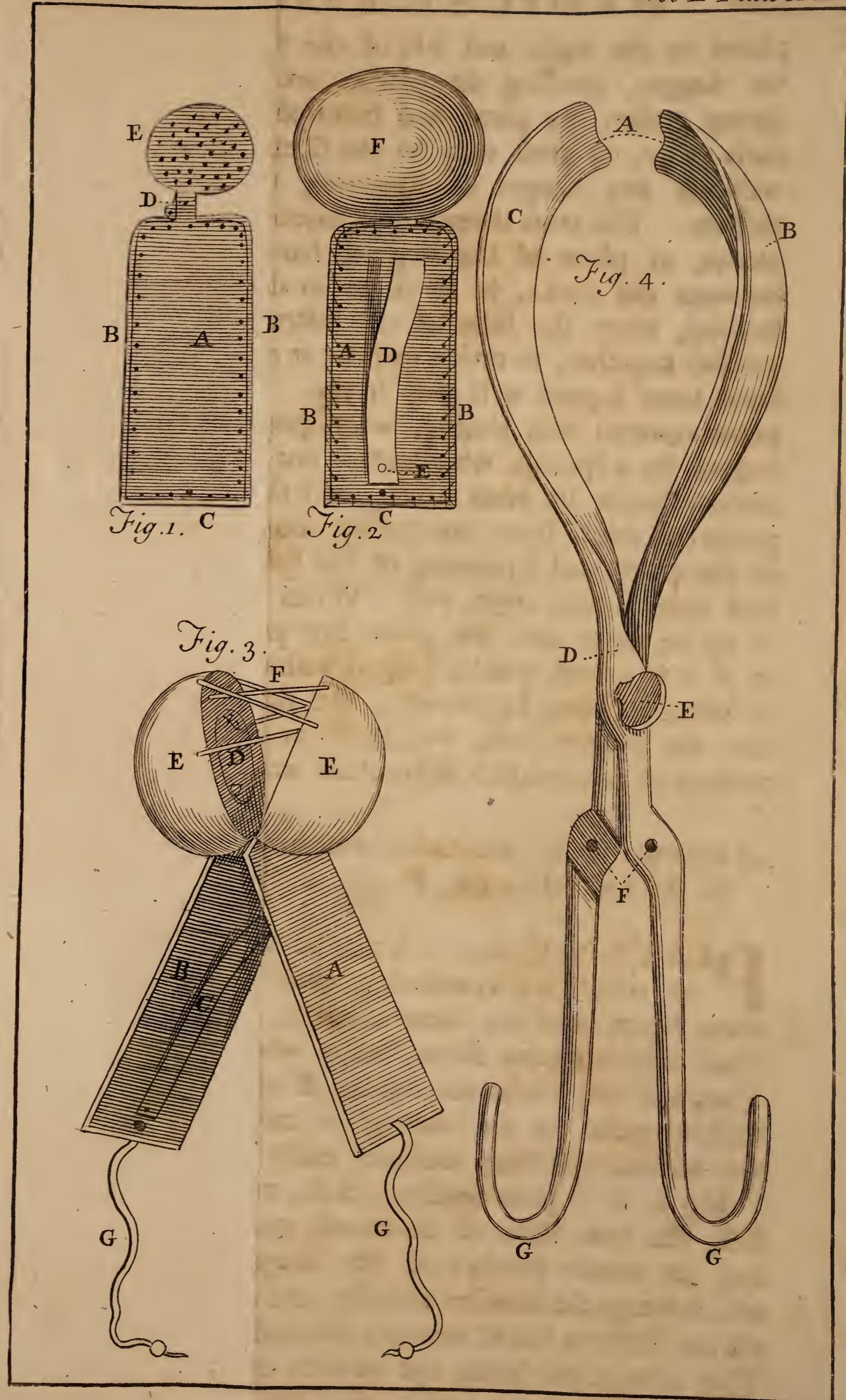
contrived the one described in this paper, which I can assure you, after sufficient experience of it in such cases, has always answered all the intentions without any inconvenience. Fig. 1. of plate XVIII. represents the exterior side of one of the plates of tin; of which the instrument consists. A, is the body of it; the sides of which, B B C, have holes made in them for sowing a piece of oil'd leather on; D, a narrow neck in the form of half a hinge going out from the large plate; E, a round plate full of holes for sowing upon it a hemisphere of cork boiled in oil. Fig. 2. shews the form of the other plate, with its interior side exposed to view, and with the leather or hemisphere of cork sowed to it. A, the plate, at the sides of which B B C, the edges appear turned in, with the threads which secure the leather on its outside from crossing over them; D, a spring of japann'd steel, which is fastened to the plate at E, but stands out from it at the other extremity; F, the convex side of a hemisphere of cork sowed to such a plate as E represents in fig. 1. Fig. 3. is the figure of the instrument mounted; A B, the two large plates; C, the spring keeping them at a distance; D, one of the small round plates with the threads, by which the hemisphere of cork is fastened to it; E E, the two hemispheres of cork; F, waxed threads made to cross from one hemisphere of cork to the other, and left of such a length as to allow the spring full play in separating the plates and corks; G G, two skeins of waxed thread passed thro' the ends of each plate, and secured from being drawn out by the knots at their extremities. Having seen D, one half of a hinge in fig. 1. one may easily imagine what could not be shown in this picture, such another applied to the side of it, when these necks of the two plates are made to cross; and that a small axis being put through them, they move easily. When this instrument is to be introduced, the two plates are to be pressed together, and the cork put as high up into the vagina as is convenient, taking care to have the flat sides of the

plates to the right and left of the vagina. When the fingers, pressing the plates, are removed, the spring pushes the plates and hemispheres away from each other, to press only on the sides of the vagina, without any danger of straitning the urethra or rectum. The cross threads now extended, hinder the uterus, or plicæ of the vagina, from falling down between the corks, so as to be in danger of being bruised, when the sides of the instrument are again pressed together, in order to take it out, and at the same time liquors will pass freely. The corks and plates covered with leather, when pressed against the vagina by a spring, which needs not be very strong, cannot bruise its coats much, and their being oiled preserves them from corrupting soon, as the metal of the plates and japanning of the spring prevent any bad consequence from rust. When this instrument is to be taken out, the plates are pressed together; or if it has been wholly lodged within the vagina, it is brought away by drawing the skains of thread; and the patient can, with little or no trouble, introduce or remove this instrument at pleasure.

*A description of several chirurgical instruments;*  
by ALEX. MONRO, P. A. Vol. V. art. 41.

**P**LATE XIX. fig. 2. a pair of scissars, the blades of which are crooked in their flat sides. The lower figure is of the same size with the scissars; the small upper figure shews better where the curve is. They are very useful for taking off excrescences from hollow parts, or for cutting in curve lines, which the common scissars cannot easily be applied to.

Fig 3. is a port-needle. A A, two flat handles; BB, the two sides of its mouth grooved for keeping the needle steady; C, the hinge; D, a spring which keeps the handles asunder, and the mouth open, till the slider is thrust towards the end of the handles. This instrument holds the needles more firmly, and its ring slides more easily than the common port-needle.





needle. Needles of silver pierce more easily in stitching arteries after an amputation, than steel ones.

Fig. 4. A bistoury and furrowed director. A, the handle; B, the blade of the bistoury; C, a button at its point; D, the handle of the director, whose groove is hollowed so as all its transverse sections are like to what is represented at E; and therefore the button, entered at one end of the groove, nearest to the handle, cannot slip out till it arrives at the other.

Fig. 5. The blades of a pair of strong forceps, the mouth A of which has on each side two small sharp teeth, which apply close one to another when it is shut. The forceps here represented, may be introduced into a wound safely when shut; and the blades being opened immediately behind the bullet, the teeth will pierce into the lead, and hold it fast enough to bring it out, tho' they are not advanced so far as the largest part of it.

Fig. 6. A trepan. AA, two plates kept together by four pillars of brass, BB; C, a handle moving a wheel which turns a pinion, to which G, the socket for receiving a common head of a trepan, is fixed. The figure is one half the dimensions of the instrument; the saw will be turned more equally with this instrument, than with the hand alone: but whether the rattling and trembling which the wheels make, are sufficient to counterbalance this advantage, I shall not determine.

Fig. 7. A levator of a depressed skull. 1. A, the wooden handle; B, the steel stalk, with several holes, in which are female screws; C, the lever bended down from the stalk. 2. The rest, with its feet covered with leather, and a male screw fixed in the top of its arch, but so as to be moved on a joint. 3. Another rest of the same make, but of a higher arch. 4. The instrument, with its two pieces joined. This instrument is much preferable to the common ones employed for raising depressed pieces of the skull; the soft feet of the rest will scarce bruise the integuments; far less are they in danger of breaking the bone on

which they are placed. The force with which the instrument acts, can be increased or diminished, according to the different hole of the stalk into which the screw of the rest is put.

Plate X. fig. 1. Another levator, all of steel. A A, the handle; B, a male screw; C, a wood screw; D, a runner, with a female screw; E, a joint, by which the stalk of the claw with teeth G, moves on the runner. Fig. 2. the wood screw C, and the end of the claw G, to shew the claw of a different form, or forked. When this instrument is used, the claw G is put under the depressed piece of bone, and then the wood screw being fixed into the exterior part of it, the surgeon draws the bone outwards, or to any side. Where the direction of the force raising the bone must be varied, this instrument is preferable to Petit's.

Fig. 3. A scoop for making the perforation into the nose in the fistula lacrymalis. A, the handle of wood or horn; B, the mouth of the scoop, which is made very sharp. To extract peas, cherry-stones, or such substances, out of the noses or ears of children, the stiff adhesive paste put on the hollow end of a small piece of wood or ivory, with which jewellers draw diamonds out of the sockets in which they are set, has been successfully employed.

Fig. 4. An instrument for pulling out teeth. A, the wooden handle; B, the stalk of steel; C, the rest; D, the claw; E, the hinge on which the claw moves. When this instrument is used, the claw is put on the inside of the tooth to be drawn, with its points as near to the roots as they can conveniently be fixed. The end of the rest is placed on the outside of the gums, and a finger being placed above the claw, to keep it from sliding, the patient's head is held by the surgeon, who presses down the handle to extract the tooth by raising the tooth, moved in an arch of a circle from the socket.

Fig. 5. Another instrument for drawing teeth. A, a gimblet handle, represented too small in the figure; B, the stalk; C, the convex rest; D, the claw; E,

the

the hinge of the claw. While the claw is put, as in the figure, the instrument can be applied to any tooth in the left side of the lower jaw, and to those of the right side of the upper jaw; but by taking out the axis, and turning the claw to the other side, it is fitted for applying to the dentes molares of the other side of each jaw. The claw being placed and held down, as mentioned of the preceding instrument, the handle is twisted round, so that the convex rest is applied to the gum on the outside of the tooth; and then, continuing the twisting, the action of the instrument is the same as of the former. This instrument is altogether necessary for drawing the posterior grinders, especially in a person whose mouth is little, and where the instrument, fig. 4. cannot be applied. They have both greatly the advantage of the pelican, in so far as their action is not so oblique, and they are much less liable to slide off the tooth. A propos of these instruments for the teeth, I must observe, that the punce has much better effect in pushing from within outwards, than in the common way it is employed, viz. to thrust the roots of teeth from without inwards; this direction being often to thrust a vault on its convex side, while the former method is acting on its concave side; and therefore the stalk of punces ought to be made longer than they usually are, that they may be put cross the mouth.

Fig. 6. The anterior view of a bolster for umbilical herniæ. AA, a plate of steel, to which the convex stuffed bolster is sewed; BB, a raised serpentine spring, fixed to the plate AA, at its extremity C; DD, a cross bar of steel, to make the play of the spring equal, and to which the circular belt is sowed. The patient keeping his or her belly distended, by retaining the breath, the circular belt is put so tight, as to make the spring lie flat on the plate. When the belly is contracted, the spring rises, and nearly an equal pressure is kept on the navel during inspiration and exspiration. This sort of spring in big-

belly'd people, rises too high; for such, a spring may be made as in the following figure.

Fig. 7. A bolster for the navel. AA, the plate of steel; B, a flat serpentine spring, the end C of which is fixed into the plate; and to the other extremity one end of the circular belt is sowed to extend the spring as the belly stretches, the spring contracting as the belly subsides.

Fig. 8. A bolster for inguinal herniæ, considerably prominent at A, and thinner at B; the form of it appears better in the lateral view of it D. The advantages of this form of a bolster are mentioned in page 82.

Plate VI. fig. 1. A sort of bistoire cachée. A, a narrow bladed bistoury; B and C, two sheaths made of thin plates of silver, between which is a groove, in which the blade of the bistoury can be lodged. The bistoury, covered with either of them, being introduced into a sinus, the silver sheath is withdrawn, and the surgeon cuts with the bistoury as he thinks fit.

Fig. 2. An instrument for opening fistulæ in ano, which have an external orifice, but do not open into the rectum, though they run up on the side of it. A, the handle; B, the blade, of the shape of a joiner's furmer; C, a nose of elastic flexible steel, with a button, D, at its crooked extremity. F, a button; H, the handle of the director I, the groove of which is made as that of plate XIX. fig 4. The furrowed probe being introduced into the sinus, with its groove towards the gut, the button F is entered into the groove at its extremity, and the furmer being pushed forward, its nose is directed into the anus, and the whole instrument is pushed forwards as far as it can go; that is, till its button is stopp'd by the shut extremity of the groove of the director, the edge cutting all the parts placed between the sinus and cavity of the gut, without any danger of hurting any part else. This instrument will cut better if its edge be made oblique from E to G, where the button should be put.





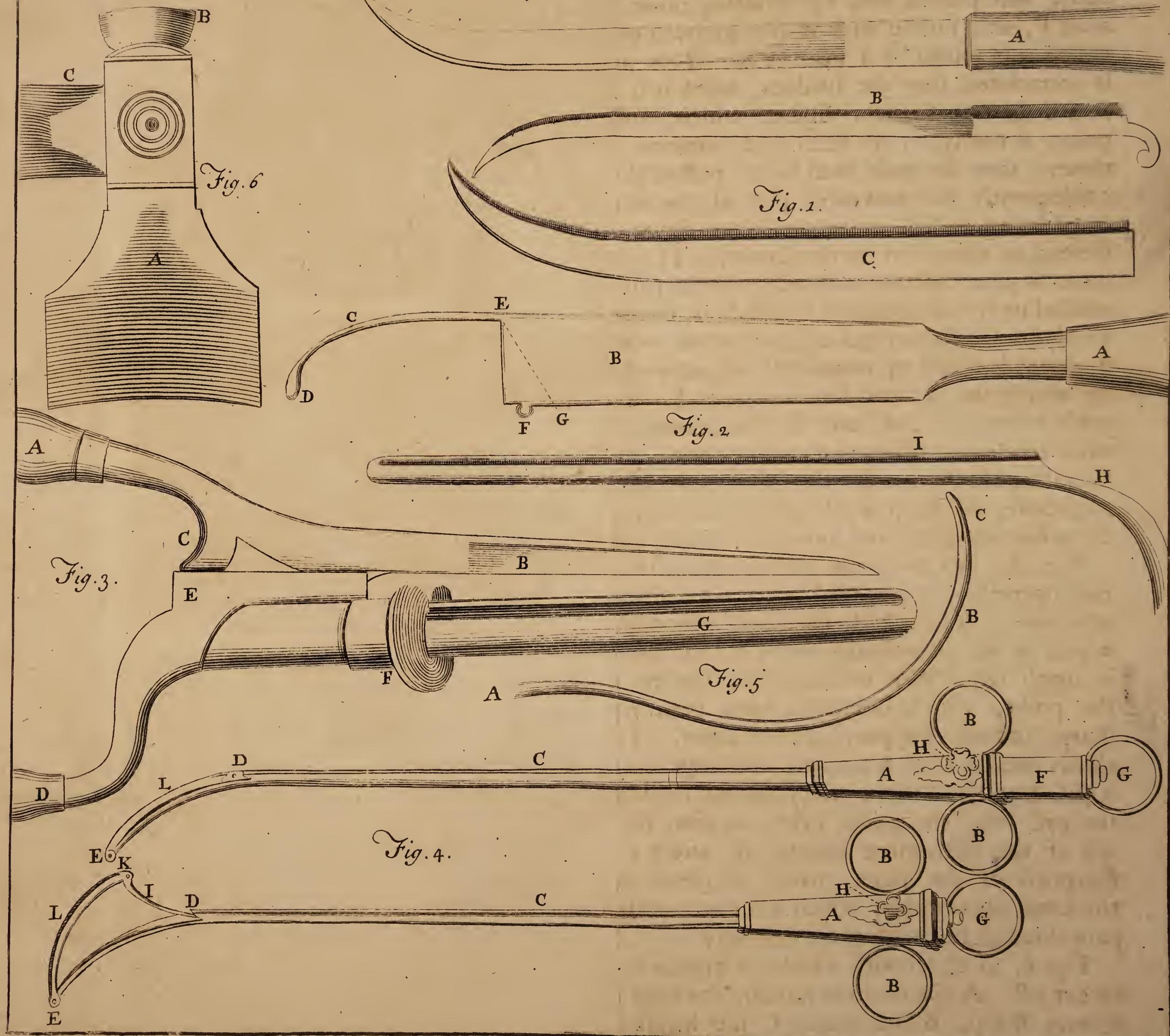
Fig. 3. Another instrument for the same purpose. A, the handle; B, the blade of a sharp-pointed bistoury; C, a thin plate lodged in a narrow sheath, E; of a director, the handle of which is D; F, a ring; G, the cylindrical grooved director. When this instrument is employed, the blade of the bistoury is introduced into the sinus with such a sheath of silver as is represented fig. 1. or by putting a probe point of wax upon it, the edge of the blade being placed towards the rectum, into which the furrowed director is introduced as far as the ring F, which is a stop to it. Then the plate C is brought to slide into the sheath E, by which the point of the bistoury is guided, when pressed into the gut, to enter the groove of the director; and, being kept there, the two instruments are drawn out, the blade of the bistoury cutting all that is between the sinus and cavity of the gut. This operation ought to be undertaken with great caution, especially if the sinus goes any considerable way up, and the part betwixt it and the gut is very thick: for I have several times seen a most obstinate diarrhoea come on some days after the operation, which has hurried the patients to their graves.

Fig. 4. Two views of a steel grooved catheter for performing lithotomy in a manner akin to Celsus's, or upon the gripe. Both figures are one third of the size which the instrument ought to be made of. The superior figure represents the instrument when it is to be introduced into the bladder. A, a female head, or square socket; B B, two rings which serve as handles to it; C, the round hollow part of the catheter; D, a joint; E, its point, where there is a second joint; F, a square male head, which can be fixed at any part of the socket by the screw H; G, is a ring, which serves as a handle to the male head, to the further extremity of which a flexible wire is fixed. The lower figure represents the same instrument, when the male square head is pushed quite down into the socket. A, B B, C, D, E,

E, G, H, denote the same parts which were marked by them in the former figure ; I, is the flexible elastic wire pushed out, by thrusting down the male head F, and raising with it the grooved part L, to which it is joined by a joint at K. This instrument is introduced into the bladder, when it is as represented in the superior figure, which, towards its point, is nearly of the form of a common silver catheter : then the male head being pushed down, and consequently the moveable part of the other extremity being raised, as in the lower figure, they are secured in that form by the screw-pin H : the instrument is gently drawn outwards, till the part I, being resisted by the sphincter of the bladder, hinders it from being drawn further out of the urethra, when the instrument is raised up towards the os pubis on one side, by which the convex furrowed part L, is made to press outwards, and may be felt between the musculus accelerator urinæ and erector pénis ; so that the operator, after an incision thro' the teguments, cuts into its groove, and upon it enlarges his incision, and introduces his conductors and forceps to extract the stone.

Fig. 5. An aneurism needle, which is fitter for that operation, as proposed in page 55, than the common one. A, its stalk fixed into a wooden handle, which is not represented here ; B, the curve, which is much larger than ordinary ; C, the eye very near the point, which ought to have been represented sharp, instead of appearing to be blunt. The handle allows one to hold it firmer ; the large curve makes it pass better under the artery, which lies in a cavity ; the eye near the point gives occasion for pushing less of the instrument behind the artery ; and the sharpness of the point makes it pierce easily the thickened membranes, which a blunt needle will not pass through but with great difficulty.

Fig. 6. A chisel with which the fingers or toes may be cut off. A the concave mouth, the edge of which is very sharp, B the head, C the handle standing transverse from the head.



and the same is the general name of the  
people who inhabit the country. They are  
a great race of people, and are  
the most numerous in the world.

Their language is very like the English,  
but they have their own peculiar words  
and expressions. They are a hardy race  
and are fond of hunting and fishing.

Their houses are made of mud and straw,  
and are very simple. They live in small  
villages, and are a peaceful race.

Their religion is a mixture of Christianity  
and paganism. They believe in God, but  
also in many spirits and demons.

Their government is a simple one, based  
on the principles of equality and freedom.  
They have no king or ruler, but are governed  
by a council of elders.

Their way of life is simple and frugal.  
They live on a diet of bread, beans, and  
water, and wear simple clothing.

Their manners are good, and they are  
kind and hospitable to strangers. They  
are a brave and勇敢 race, and are  
respected by all who know them.

## ESSAYS on particular Diseases,

*An essay on nervous fevers; in a letter to Dr. JOHN STEVENSON, physician in Edinburgh, from Dr. EBENEZER GILCHRIST, physician at Dumfries.* Vol. IV. art. 23.

THE various causes of fevers, and methods of cure, delivered by authors, appear to me altogether unsatisfactory. I shall therefore take no notice of what others have said, but give you my thoughts just as they arose.

Fevers of the low kind, commonly called nervous, by some internal, influent, depressed, have been these many years (a) fatal in Britain. This disease had different appearances in different persons; young people generally complained at first of stitches or pains, as in slight rheumatisms, for which this was sometimes taken; their pulse was pretty natural, and they slept much as usual; the sickness they complained of, was a heaviness, with some degree of faintness; nothing of danger appeared, till a delirium, or signs of one, shewed it: those who seemed in no danger at first, generally died. Others were seized more violently: they had a vomiting or nausea, and the headache; their pulse was full, strong, or hard, with heat, thirst, and redness of the eyes. As the case then appeared inflammatory, it was necessary to bleed once or more, which considerably lessened the symptoms, but not always. As the delirium came on, the inflammation abated, the pulse grew low and contracted, the heat moderate, and they could not bear bleeding. Sometimes they languished two or three weeks before the disease, which stole on insensibly, formed into a fever. In this case, there was no reckoning of days, for it was not known when they

were seized. The disease, tho' different at first, yet in its progress and heighth was always the same.

After the first symptoms, an obstinate delirium came on, and generally soon ; sometimes a looseness, with pains in the belly, partial sweats, which gave no relief, a tickling cough, with faintnes. Soon after the delirium, fatal symptoms appeared. In some the delirium ran not so high as in others, nor was it constant. At times they talked reasonably, even with a subsultus tendinum upon them. These lay much dispirited, and wasted fast, without any, or but little, increase of evacuation. On the urine of some of these a fatty pellicle appeared. Sometimes continual cold, clammy sweats are observed ; at other times they melt with profuse sweats, and the skin feels quite cold. These are the more obvious appearances and remarkable symptoms. Such as lived poorly, were subject to this fever, but few had it who lived well ; and of wine-drinkers I do not remember that there was one seized. As to the cause of this disorder, I shall suppose two different states of the fluids, a siziness or lensor of the blood tending to inflammation, and a too great dissolution of it. From the first this fever generally proceeded, as appeared from the crust on the blood, or from the symptoms. The tongue was, for the most part, white and moist, seldom dry, black, or chopped ; there was no judging of a crisis from the urine ; it was like that in health, but sometimes redder ; a thin, mealy, dusky sediment was mostly observed, or a thick cloud falling to the bottom. This want of a natural sediment may be owing to different causes, depending on the different thickness and velocities of the blood. Where the blood's motion is much increased, its several parts are so blended together, that they remain confused in the urine. Where the blood is thick, and its velocity but little increased, the watery parts only will be separated by urine, while the oily, saline, and earthy ones will be retained. Hence a deficiency of sediment, a large flux of urine, profuse sweats, or an increased looseness, are bad

bad symptoms in this fever: This sify state of the blood has a tendency to inflammation, the more, the greater the danger; and the disease is less hazardous, in proportion as the inflammation is less, till the lensor is so little, as not to be the cause of the fever, but rather a contrary state of the blood is suspected; then the danger grows in proportion to the degree of dissolution. It is this lensor in the blood, which, according to the season, manner of living, and constitution of the person, produces fevers, pleurisies, and rheumatisms. That they have one and the same cause, will not appear improbable, if we consider the likeness and complication of the symptoms in these distempers, and how readily one of them is changed into another.

There is an universal spasm, or muscular tension, which appears in fevers, but more evidently in those that have a greater degree of inflammation. This lensor, and the spasm consequent on it, essentially constitute the fever; and in the cure, regard must be had to one or other, or both of these. By spasm is meant the effort of nature to free herself of what is hurtful. The degree of force of this effort, will be as the stimulating cause, and as the parts affected. What are rigors, &c. in the attack of fevers, but a spasm of the whole body? Are not disorderly secretions and excretions a spasm of particular parts, or the effects of a more universal spasm? The same are the increase of fever, anxiety, contracting and irregular pulse, which happen frequently upon blistering, hot, stimulating medicines. Whatever increases too much the oscillations of the solids, will be the cause of a spasm.

One general observation taken from the pulse before and after the height, will further shew what I mean by a spasm, and what share it has in this fever, whether it be reckoned a joint cause, or a chief symptom; for this sometimes requires great attention. The pulse, before the height, is low, weak, small, hard, irregular, contracted, and always below the standard.

standard. A certain increased degree of circulation, is necessary for the resolution, preparation, and expulsion of the matter of diseases. As the fever goes off, or a crisis succeeds, the pulse becomes full, firm, soft and strong; and if it has not these conditions, the patient hardly recovers, or suffers a relapse. This remarkable change happens from a spasm, which, abating at the height of the disease, gives room to the blood to flow equally into all the vessels. The quite contrary happens in sanguineous and inflammatory cases, where before the state the pulse is full, hard, and strong; but after, small, weak, and languid. To have a clearer apprehension of the nature of this disease, the fever and delirium should be considered singly. One may bear up a good while under the fever, even when there are considerable degrees of malignity, while the several functions are performed, or not much injured, and the matter is free in the vessels; which, by repeated circulation, will be at last concocted, and the fever determined: but when a delirium comes on, there is a new disease formed, from a particular disposition of the matter of this fever to take to the head. The analogous symptoms of the fever and delirium conjunctly, will now increase the cause, or heighten the appearances of the fever, beside the symptoms peculiar to the delirium itself.

The symptoms in a head-ach, the usual forerunner in a delirium, and which we shall suppose to be in the membranes of the brains only, are coldness and tremors, nausea and vomiting, stricture of the breast and præcordia, involuntary motions of the head and neck, a contracted, irregular, and sometimes an intermitting pulse. These are all the effects of a spasm. When an obstruction is in the brain itself, another set of symptoms appears. Besides these mentioned, the functions are not performed, the faculties are impaired or lost, the secretion of a fluid in the brain hindered. This occasions an irregular distribution of spirits into some places violently and unequally, into others not at all. Hence proceed startings, subsultus tendinum, convulsions,

convulsions, which are all greater degrees of a spasm. A fever with a delirium therefore, must be considered as a complicated disease.

It will help to form a judgment of this fever, if we examine what proportion the fluids bear to the vessels ; the quantity is seldom more than what is found in a well constituted body, sometimes less. The appearance of fullness in the beginning, is rather owing to an inflammation than a plethora. Here is a stricture of the vessels in a collapsed state, by which the fluids are strongly compressed, very different from one from fulness, where the sides of the vessels are distended. The removal of the stricture in one case, is by plentifully bleeding and cooling ; in the other, by relaxing the vessels, and attenuating.

Hence we perceive, how a fever, which at first appears favourable, may, when a delirium comes on, be equally malignant, as that which has more acute signs in the beginning, and why this disease is so dangerous ; for diseases, from inanition, are more difficult of cure, than those from repletion. And that a delirium is not to be regarded as merely a symptom, and the removal to be attempted by means that in general only respect the fever.

Hence likewise we account for a weak, low, small, contracted, irregular pulse, shrinking of the solids, and sudden appearances of wasting when there is no increased evacuation.

As this fever differs in its nature and changes from other fevers, so it is less subject to the rules in prognostics. The usual evacuations in the beginning, are bleeding and vomiting ; but I do not know why purging has not had a place here. As the patient has a seeming plethora, we bleed ; but the symptoms are not always much abated by it ; and if we bleed freely, we do harm. In general, bleeding seldom did much good ; and if great caution was not used, was hurtful. With respect to vomiting, I am doubtful whether it be always useful here. In this fever we may expect a delirium pretty soon. By vomiting,

vomiting, the force of the circulation is strongly determined to the brain, which at this time should be diverted from it, lest a thick fizy blood impacted into the brain, bring on a delirium sooner than might otherwise happen. There is seldom great danger where this symptom comes not on before the ninth day. Vomiting has been of a long time useful in fevers; however true this may be in eruptive fevers. I do not see what it has to do in other fevers, where we know not what is to be expelled, nor when.

If in fevers the cause of the disease be lodged in the first passages, by vomiting we may remove part of this cause: But if it should not be so, the evacuation enables them to do their office by clearing them of recreementitious humours. Vomiting in so low cases, gives a greater spring to the solids, straitens the vessels, and keeps the blood, when it tends to a dissolution, more compact, and so prevents its stagnation, and hinders the fluids from running off at a wrong time, by wrong outlets, as sometimes happens in profuse sweats, loosenesses, &c. Vomiting is improper in fevers which affect the head; for tho' it may give some relief, yet if the lensor be broken and dissolved, it will only be driven farther into the vessels, by which a delirium must be hurried on. If vomiting is judged absolutely and constantly necessary, it should not be delayed beyond the first or second day; for after this I think it hurtful.

But as we are to have regard to the state of the primæ viæ, if vomiting is not proper, a purgative will perhaps answer all that is intended by it, and do something more than can be expected from a vomit. When a purging medicine is doing its part in cleansing the first passages, its effect seems to reach farther. Purgatives excite some degree of a fever; and from what frequently happens we must believe that some part of them mixes with the blood. In rheumatic cases, whether acute or chronical, they are of great service. Sydenham lays a stress upon them in a peripneumonia

neumonia notha. & Fevers in the beginning, of no certain sort, have turned out of a distinct species upon purging. Thus agues are every day brought into form, and sometimes carried off. That the effect of purgatives extends farther than the first passages, appears probable likewise; for during their operation, some kinds of eruption inflame and turn worse. Nor is this strange; for, the same medicine, differently managed, will vomit, purge, and pass off by urine or sweat. I need not mention, that they are known to compleat a perfect crisis, and to promote, or ascertain it, where there are no evident, or but very doubtful, signs of it. From all this I would alledge, that in many cases purgatives are more proper in the beginning of fevers than vomits; for while they cleanse the stomach and intestines, they attenuate a fizi blood. Besides, they make a notable revulsion from the nobler parts, upon which the force of the disease readily falls, without the disturbance often occasioned by vomiting. It is probable, that after bleeding to a due quantity, when necessary, purgatives timely given would either break the force of the disease, or dispose it to take some more favourable form, as of remittent, intermittent, or perhaps destroy it.

Purgatives may be of singular use in the cure of the fevers of cattle, where other medicines have proved ineffectual. A fever of a particular kind has raged among the cattle of this country, and proved very mortal. Medicines were of little service; the most successful method was, to remove them into fresh grass, by which they were purged and cured.

Having mentioned this disease of the cattle, a comparison might be made betwixt it and some fevers that have affected human bodies, so far as they may be found to proceed from the same first cause, viz. the air and weather. For some years, warm open winters without frost, rainy summers, and harvests, have been generally complained of. If by these a distemperature of the fluids is brought on, it will be  
kept

kept up so long as the weather is the same. We, with the beasts, are under the same external influences from the air and seasons; and the same diseases will be found in human bodies as brutes, though somewhat different in appearances, from their being exposed more to these influences, and from their food. But let us suppose the disease nothing lessened, nor altered in its shape, and now a continual fever; I am afraid there is a trite way too much insisted in, in treating it without distinguishing the causes from whence it may proceed.

The first thing I shall take notice of, is blistering. As soon as the fever is known to be of the nervous kind, a blister is laid to the back, then to the arms, next to the legs, and last of all to the head; at the same time cataplasms are applied to the feet: which last I have seen so ill timed, that they have been but an hour or two applied, when the patient, after long watching and raving, has seemed to fall asleep, but never awaked again. Mistakes are frequently committed both as to the times of application, and the places to which blisters are applied. This fever I have observed to be attended with an universal spasm; and this owing to a lentor in the blood, having a more or less tendency to inflammation. Blisters are absolutely necessary to attenuate this lentor, and every day convinces us of their efficacy: But then they very much increase the spasm, especially when applied to the more sensible parts, as back and arms. I have been much disappointed, and at my wits-end what to do, when blistering, which I trusted most to, has heightened all the symptoms; and this was most observable from the pulse, which, in the intervals betwixt the different blisters, was pretty full and soft, upon every new application becoming smaller and more contracted, other bad symptoms increasing in proportion. This contraction of the pulse, I could attribute to nothing but a general spasm, from a stimulus applied to a nervous part, as is the skin, which by consent will bring every

part of the body capable of it, into a state of contraction; and this is a property every particular fibre is endowed with. When the vessels are relaxed beyond their just dimensions, increasing the contractile power helps to attenuate the viscosity of the blood; but when they are too much contracted, as appears to be the present case, the siziness of the blood will be increased. If the stricture is taken off, the diameters of the vessels will be increased, the particles of the blood have room to separate, and its regular circulation promoted, which may be assisted by proper attenuants and diluents. Blisters are hurtful, as by making a drain of serum from the blood, they render it thicker; and which is worse, have the same effect as the loss of an equal quantity of blood, which the patient is not in a condition to bear. Something indeed is to be done as soon as possible, for an opportunity lost in fevers is not to be regained. It is not blisters themselves, but the ordinary ways of applying them, which I speak against. The following method will answer all that is proposed by them, without the usual hazard and incovenience. Let a blister be applied to the whole head upon the first appearance of its being affected, the signs of which are the urine turning pale, great anxiety, deafness, sparkling eyes, and wild looks. Blisters at this time do real service, but do hurt when the delirium is come on. In some very low cases, indeed, where the strongest spur was necessary, blistering the whole head, and giving the highest alexipharmics has done service, even after the worst of symptoms have appeared; but instances of this kind are very rare. The appearance of severity makes people afraid of applying blisters early to the head; but a blister on this part gives far less pain, than when applied to any other, and, consequently, the bad effects of too great irritation, an increase of the spasm, and stricture of the vessels, will be prevented. A blister betwixt the shoulders has brought on a delirium

rium by its irritation, which has not gone off till the blister was removed.

When a delirium comes on, an obstruction is beginning in the brain : a blister applied to the head, may probably attenuate and dislodge this obstruction while it is but small, and the vessels have not lost their action, by being over distended. The same cause will also stimulate the vessels, and give them a firmness able to resist the viscosity being lodged in them. Besides, the blood will be more determined to flow by the external carotids, by which the pressure will be considerably taken off the brain. And will not a stimulus, affecting the muscles and membranes of the head externally, accelerate the blood's motion in the external jugulars, and so give some relief to the brain this way? Those acquainted with the anatomy of this part, will easily find how blistering answers the purposes both of revulsion and derivation ; and as the active parts of cantharides may pass into the brain, so as to reach the smallest vessels, a blister applied to the seat of the obstruction, acts immediately on the obstruction ; but to a remote part, can only affect it by attenuating the whole mass of blood.

Blisters applied late in the disease, when the obstruction is great, and the vessels have lost the power to recover themselves from being distended too much, tear and destroy the delicate vessels of the brain, but can do no service.

Hence blistering is forbid where the eyes are inflamed, which is a sign of a considerable inflammation of the brain. We should therefore blister while the obstruction is forming, as it is the only time in which we can safely do it.

The good success of blistering the head, was remarkable in a young man ill, as it was thought, of a rheumatic fever. A delirium soon came on, a blister was applied, and a few hours after it went off. The next day the blister was taken off, and the delirium soon returned ; the blister was again applied, and

and with the former success. From this example, and from observing the symptoms to encrease upon blistering other parts, I blistered the head first in a delirium, and having tried it several times since, was not disappointed.

When a blister is applied to the head, it ought to be kept on three or four days, to answer any purpose; this is another reason for applying soon. Blistering the head will not always prevent, or carry off a delirium; it may come to a considerable height, notwithstanding this precaution; but if it can so dispose the vessels of the brain, or the obstructing matter in them, as that the obstruction shall be resolved in a proper time, when the delirium does not continue above four days, it does a great deal.

While blisters are resolving the obstruction in the head, others should be applied to the legs, to determine the force of the circulation downward. The great pain, (for blisters on the legs are the most painful of all others) and the loss of serum seem to forbid this practice; but as to the discharge, it may be more safely promoted here than from any other part, and it strongly diverts the humors from the head; and as to the pain, frequent bathing of the legs will greatly abate it: the hair should be shaved off, because it occasions exquisite pain in dressing of the blisters. The feet and legs should be warm, bathed two or three times a day; by which the spasm will be a good deal allayed, and the blood more effectually cooled and attenuated, than by drinking plentifully, for many aqueous particles will get immediately into it. Care must be taken not to be too free in bathing the feet; for in nervous fevers, a delirium is sometimes hurried on, and much hurt done by it. As they cannot bear bleeding, so neither can they bear this simple revulsion, without fainting, raving, and other bad symptoms. Acrid cataplasms applied to the feet, stimulate too much, and so increase the spasm. Such as have an anodyne relaxing virtue, and attenuate the blood,

are more proper ; such as poppy-heads, sal ammoniac, and cow-dung.

Epithems will be of good service here. One composed of wine, camphor, and vinegar of roses, is the best I know of. This applied to the temples, forehead, arm-pits, wrist, and other nervous and glandular parts, will refresh the patient, allay the spasm, and attenuate and resolve the viscidity. Something answering the same intention, may be frequently smelted at, and snuffed up into the nose. If by these means we can prevent a delirium, or an obstruction, from being confirmed in the head, we may blister other parts as the disease shall require ; for neither the irritation, nor evacuation, will be so hurtful now, as they would have been sooner.

This fever is attended with a notable orgasm, so great, that upon every little disturbance or irritation, the patient is thrown into heats, anxiety, disorder, which necessarily increase the delirium. It is of the greatest advantage to patients, that they be kept in a dark room, free from noise, or any thing which may disturb them. This will seem to forbid blistering, because pain and irritation are inseparable from it. But I have shown how, in a good measure, they may be prevented ; and it will not be alledged, that blisters are useful only as they stimulate and give pain. They are not always intended to evacuate ; they would do more good in many cases, if they did not irritate at all, or but very little. In this fever they are not otherwise useful, than by attenuating the sify blood, which they do powerfully ; so that the consequences of blistering, a painful stimulus, and great evacuation, ought as much as possible to be prevented. In other cases, where there is great laxity, and dissolution of the blood they will be useful, both as they are a brisk stimulus, and promote a plentiful discharge of acrid, or superfluous serum.

Some apply but a few blisters at a time, and make as great a distance betwixt the applications as the case will allow ; but then they must be kept running

a good while. This way of turning the blisters into issues, will have a very good effect, as it makes a moderate discharge from the blood, as it determines the circulation to some particular parts, and by a gentle continued stimulus keeps it up, and prevents stagnations in the viscera and organs. I have observed it to do very well when the fever runs out beyond the fourteenth day, and the patient, through weakness, or that a sensible crisis has not given a turn to the disease, still labours under it, and the event is doubtful. But the disease is for the most part at a height the time I mentioned (they seldom die when they get over the fourteenth day) and must decrease, tho' slowly. And all that seems necessary to be done, is to keep the blisters running, to give such things as may insensibly waste the disease, as diaphoretics and gentle purgatives, (I give small doses of pil. rufi, and frequently) not forgetting cordials, and proper nourishment, lest they languish into a hectic. This hectic is of the intermittent kind, partly from inanition, partly from the matter of the fever not fully carried off. Blistering can be of no service, and the success of the cortex I very much doubt of.

Sometimes the patient is fatigued with continual or partial sweats; these are symptomatical only, and give no relief, but frequently the sick grow worse upon them; they are owing to a stricture upon the vessels, by which the watery parts are expressed and poured out by the skin, which is relaxed, and easily allows the expressed serum to pass through, for want of a due secretion of spirits from a thick blood; or that this fizy blood cannot be circulated into its vessels to give it a tightness. That there is but a small force of circulation towards the surface, appears from the degree of heat felt upon the skin, which is seldom more than natural. I have seen a blister stopping these sweats, no doubt, by giving a greater firmness to the skin. But as I make a scruple to apply a blister too soon, unless to the head, because it increases the stricture, some other method may be tried to

prevent these sweats, which carry off the watery parts of the blood which are necessary to cool and dilute it, as causing the patient to sit up in bed, &c.

Blisters ought never to be applied in the access of a fever, for they raise no small fever of themselves, and the disease is really increased by them. At night the disease has exacerbation ; it is extremely improper therefore to apply them then. Indeed the management of blisters, so as to obtain all we expect from them, and to do no harm, is more difficult than is usually thought.

The bark is not to be given in paroxysms of fevers, nor in convulsive cases, lest by its great stimulus, or astringent quality, it so straiten the vessels, as to occasion a strangulation in them ; for however useful it may be out of the fit, it is hurtful and dangerous in it. The same may be said of all these things which act by a strong stimulus, which we are careful not to apply in the access of fevers, but rather such things as sooth and relax, and, in short, have an effect quite opposite to that of a stimulus.

But blistering will not of itself do all ; the cause of the fever is a lensor of the blood, and a spasm consequent of it ; and these depend so much on each other, that we may, providing against the one, increase the other. The intention of cure then is double, to attenuate the viscosity, and allay the spasm. Blistering is well fitted to answer the first, but it increases the other, unless managed in some such manner as I have hinted ; and at the same time medicines be given that may answer the other intention, or both.

Warm, generous medicines, alexipharmics, and all such as heat, stimulate, and force sweat, are ill-suited to the nature of this disease, at least in many cases : for these things which stimulate, and so increase the circulation, will but farther increase the spasm and obstruction ; and if sweats are forced, this will render the sanguineous blood still thicker, and less fit for circulation.

At first view this fever appears to have but little inflammation, and the circulation is but little increased, and therefore warm medicines seem indicated; but experience shews, that there is as great a spasm in this disorder, as in some higher inflammations, which is heightened by these indiscreet methods. The many instances of recovery among the poorer sort, who have little attendance, and less medicine, may be a proof of this. The lowness of the pulse, fainting, and moderate heat, make us believe that the blood is poor or defective, or that there is something of malignity, and that upon these accounts the vital functions are not performed: and upon this supposition the indication is taken for warm stimulating medicines. But it may be easily made to appear, that these symptoms proceed from a very different cause, viz. a lentor of the blood, and a spasm depending on it; which is the reason that there is a less secretion of spirits for the use of the several organs, and a more difficult circulation through the whole system of vessels. From the same causes, in other diseases, we observe the same effects. This is plain in the case of vapours and hysterick fits, which are most frequently thought to proceed from a viscidity of the fluids, and such a constitution of the solids, as I chuse to call a genus irritabile. A rational practice has found, that in this distemper, I mean in the fits of it, warm, stimulating, or highly attenuating things, given with a design to raise the spirits, are not the safest.

The medicines best suited to the disease, are such as do not stimulate, or but very little, nor increase inflammation; as oculi & chelæ cancrorum, sperma ceti, rad. serpentariæ Virg. valerianæ silv. castoreum, sal prunellæ, sal absinthii, sp. nitri dulcis, sp. salin. aromat. sp. cornu cervi, and the like. Ant. diaphoreticum is highly commended by some in a delirium. Saffron, in small quantity, is anodyne. Most of these enter into the composition of the more celebrated antispasmodic remedies. As some of them allay the spasms,

spasm, others attenuate the blood; both which contribute to keep up a free perspiration, which is always a good sign, forced or continual sweats being generally hurtful. They may be mixed and proportioned, as there is greater or less tendency to inflammation: they may be given with more advantage in small doses, and every hour or two, than every fourth or sixth hour, as is commonly done: when the dose being larger, the patient finds himself heated, sweats, and is uneasy: whereas by giving them in small doses, and frequently, we put no force upon nature, and have a constant, equal, and gentle effect from the medicine. They may be given conveniently in a julep made up of cordial and analeptic waters, as they are called, which may be drank at pleasure, and will not fail to give relief under lowness and oppression. We are not, upon every change, or appearance of a symptom, to stop the giving of these things, or give more forcible medicines upon an increase of symptoms. These persisted in, even when they seem to be doing but small service, will, perhaps, in the event answer our expectation; for it is not the giving of a medicine for a day or two, that will do the business. I should have mentioned camphire, which has this great advantage, that it may be given in any case of this kind, without fear of increase of inflammation; and whether the case have more or less of it, it is very proper, and may be conveniently joined with other medicines, whether intended to warm, or cool. Camphire is really an antispasmodic, as by immediately affecting the solids, it procures a relaxation of them when too much contracted.

It is well known that dilution has a large share in the cure of fevers, and drink must be given plentifully, not only as a vehicle to convey medicines into the blood, but as it cools, attenuates, relaxes, and keeps up the liquid secretions in a natural order. Leniens, aperient decoctions, somewhat saponaceous, are best suited to the present case. These, as they are easily mixible with the blood, do not run off so

soon

soon as drinks that are thinner, or vinous, or force sweat, which is not to be encouraged beyond a moisture. Sack-whey is the common drink, yet I prefer common whey, and seldom favour a drink which has wine in it. Ardent spirits stimulate too much, and in some degree coagulate the blood; spirituous juleps are not proper, either as a vehicle, or to be taken when faintish: the best cordial is two or three spoonfuls of Malaga, or sack by itself. These wines being stocked with a rich oil, when applied to the vessels, adhere, and give a kindly heat and gentle stimulus. Wine, discreetly given, by its warmth procures an agreeable relaxation to the solids, when made rigid by a spasm.

Three sorts of medicines operate in this manner, and differ only as this warming penetrating oil is more or less involved. These are camphire, wine, and natural balsams with their oils. Camphire is extremely volatile; its volatility renders it in some cases more useful than wine, particularly in inflammations, where, did this oil adhere to the vessels a long time, it would increase them; but for this reason it is less useful in other cases than wine, which applied to the vessels, adheres more firmly, and so has a more lasting effect, which seems necessary in fevers, where the inflammation is small, and the tension great. These things, besides relaxing the solids by their kindly heat, likewise attenuate the fluids, and blunt the acrimony, and so remove the causes of tension and inflammation. Natural balsams are more fit for external applications, their thickness and too great cohesion rendering them unfit in cases where the other are proper. I commonly give a small glass of wine five or six times a day, and never observed any bad effect from it. I have known it taken to a much greater quantity for several days, besides a reasonable quantity of common julep, which contributed not a little, I believe, to the patient's recovery; however, it is not to be given at all times of the disease, particularly in the beginning, when the inflammatory symptoms are any

any thing considerable; but for several days before the height, it may be given with great advantage, as well as after. This practice of giving wine sometimes in acute cases, has the grave authority of Hippocrates to support it. Where the blood is poor, and much dissolved, in which case it naturally acquires some kind of acrimony, it is a sovereign remedy; for it will restore the relaxed vessels to their tone, invigorate the blood's texture and motion, by storing it with warm balsamic parts, exhale the vapid serum, resist putrifaction, and correct the acrimony. In all fevers of this kind, which have not a greater degree of inflammation in them, and in some particular kinds of small-pox, there does not seem to be a better medicine.

The best way to procure relief under lownesses and oppressions, is by gentle anodynes: these, as they allay the spasms, would give greater freedom to the blood in its motion, and have some effect to attenuate it, and so prove a much better cordial than what is commonly given, which acts no other way than as a stimulus. When the disease seizes with greater signs of acuteness or inflammation, as vomiting, looseness, heat, thirst, sighing, and strong depression, a gentle opiate given in some refreshing julep, will allay these over-bearing symptoms. These symptoms then happen only the first days; for by the time the patient is delirious, they are pretty much gone, or he is not sensible of them. This is the proper time to try opiates, lest by the urgency of such symptoms, greater be brought on. A prudent use of them might put off the delirium for some time: this would be no small advantage, for the patient's life depends upon its coming sooner or later; and if the symptoms are moderate at first, they are not wanted till the disease is advanced, and a delirium comes on with a dreadful train of symptoms, which will not yield to a less powerful remedy than opium. To soothe and compose nature under the violent degree of tension of the solids, and proneness to be irritated,

which

which is in this fever, must necessarily be of great advantage. The known effects of opiates, their being without danger when rightly managed, and their great usefulness in cases very like this, should encourage us to try them here too. Some authors say, they have had great success with opiates in fevers of a bad kind, and that an expected crisis may be safely promoted by an opiate. This it effects by allaying the spasm, and giving freedom to the circulation to throw off the concocted humours by some common outlet. Dr. Boerhaave has an antipyreticon, which, he says, rarely fails him in agues. By experience I know it will prevent the fit; and if it does not remove the disease, it will make the exhibition of the bark more successful. The efficacy of this medicine is certainly owing to the large quantity of opium in it. Hysterical cases grow worse upon the smallest irritation, and are not to be allayed without opium. In convulsive disorders, it is probable that they would prove more successful than the warm stimulatory things usually given; for I am very certain the symptoms are frequently increased by these: but I have seen bathing from the middle downward, dry cupping, and whatever will make revulsion, without loss or irritation; and these things which allay a spasm by their anodyne quality (properly) have a surprising effect, to procure a remission of the fit, when the most noted cephalics have been hurtful, or useless.

Opiates only in some cases of fevers, can be given with safety and advantage: where there is any considerable degree of inflammation, they are thought to be hurtful, especially if there be an obstruction of a particular part; yet the papaveracea are given here. Where there is great relaxation and dissolution of the blood, they are plainly out of the question. It is in a mixed kind of fever, that they can be useful, such as ours was, where there were degrees of inflammation, but that would not admit of the methods of cure in inflammations, and had besides a remarkable spasm.

I do not think opiates are to be given to any considerable degree, but in such a manner, that though their effects can hardly be observed, we may be sure they have some; and by mixing them with other things, we may prevent their bad consequences so often observed, and justly feared. The bad effects of opiates are not from their being absolutely hurtful in themselves; there is a great deal in the time, the manner, the dose in which they are given, not to speak of the patient, or the disease. Where these circumstances appear, opiates might be applied successfully to many more purposes than they have yet been. I have known an asthma increased by what was thought only a reasonable dose of opium; but the same quantity, or little more, given at times, so as that the whole should not be consumed in less than twelve hours, has had the desired effect. Frequently we are obliged to give an opiate in the morning, the effect of which is not wanted till night, for some are wakeful after taking it.

*Of nervous fevers; by EBENEZER GILCHRIST,  
M. D. communicated by Dr. WILLIAM  
COCHRAN, fellow of the college of physi-  
cians in Edinburgh. Vol. V. art. 48.*

**T**HREE are many who cannot conceive of a fever without the notion of fire, heat, or some very active irritating cause; and in many fevers there is good reason to have something of this kind in view. This fever has something peculiar in it, which neither ancients nor moderns, perhaps, have described. The causus of the ancients, however similar in some symptoms, appears to be a different distemper: they knew as little of it, as of the modern disease, lowness of spirits. These two have such a strong likeness and connexion, that I consider them as one, only with this difference, of acute and chronical. The one is to the other, what a simple hectic is to a continual fever; so that vapours may be called an habitual nervous

vous fever, and a nervous fever acute vapours. As the resemblance is in every instance almost presenting itself, an instructive parallel might be made betwixt them ; they would mutually support and illustrate each other, which would give a juster ætiology of both diseases, assist us in the diagnostic and prognostic parts, and point out more certainly the proper curative intentions in all, but especially in perplexed cases.

Formerly I placed the cause of the fever, as it was then, in a lensor, with some degree of inflammation, and a spasm consequent of them ; from which the degree of malignity was to be determined. I thought too, that even what appeared to be a simple inactive lensor, might be equally malignant, as when it is attended with either inflammation or acrimony ; which shewed the necessity of distinguishing betwixt the fever and delirium. To illustrate and confirm these things, let us suppose the first degree of the fever, proceeding from a lensor without combination, and endeavour to trace the disease through some of its intricacies.

Tho' the first degree of this fever was seldom mortal, yet sometimes, by reason of a delirium, which came on at an uncertain time, and without giving warning, it became dangerous. A mild viscid in the blood, of the rheumatic kind, while it can be circulated, will excite a fever of a mild kind, by which nature endeavours to attenuate and reassume the offending matter. When it is more difficultly circulated, it easily fixes upon this, or the other part, so as to occasion pains wandering or more fixed, an universal slight rheumatism, lumbago, sciatica, and in the breast a slight peripneumony or pleurisy. Such was the constitution in many cases where I supposed this simple lensor only. These pains and ailments came on at uncertain times of the disease, and were easily changed one into another ; a delirium came on sometimes the first or second day ; at other times, not till the disease was supposed to be at its height. Nay,

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the same disease ever varying, was sometimes an apoplectic fever, and ended in a palsy.

The matter of the disease must have been very moveable, but not easily attenuated; but by a just degree of the fever continued, this viscid disposed to form obstructions in different parts, was sometimes dislodged, and the disease returned to its first type, a simple fever. At other times, though this obstructing matter was dislodged, it fell on the brain, and at a time when a correction of the matter, and termination of the disease was expected. As this matter therefore is easily translated to the brain, and at uncertain times, something must be early done to attenuate it, and break the fever, which of itself, without a delirium, was often easily subdued.

We are now then to suppose an inactive lentor loading and obstructing the brain, and not a sufficient degree of fever to resolve it; for the fever ceased when the matter of it was thrown upon the brain. The patient, in this case, is without fever; or what fever he has, is symptomatical; the pulse is low, flaccid, and very little increased in quickness; he lies without sense of pain, or sickness, raves without furiousness when awake, but for the most part sleeps composedly. This sleep is properly a veternus, which happens for want of a due circulation into the extreme parts, from the brain not doing its office.

This obstruction happening in a low state, or when the circulation cannot be raised high enough to resolve it, produces a great perplexity of symptoms, which cannot be accounted for from the fever which has preceded, for that is now much over. If we preserve the notion of the fever in that degree in which it exists, and principally of an obstruction of the brain too, we shall know what symptoms arise from the one or the other, or both conjunctly.

When this obstruction then is formed, which, with respect to the fever, we suppose a crisis, the secretions made in the brain will be disordered and lessened, or their action prevented. These powers thus deprived

prived of the necessary supplies for motion and sensation, a fever, which is employed in preparing of the matter of diseases, is not performed ; that is, while the brain is hindered from doing its office, all the necessary motions are in some sort suspended, and nature remains in an inert incapable state.

But though, from the causes mentioned, a right degree of the fever is prevented, yet if there is any small remains of the original disease, the matter of it will lie still accumulating, and nature forced to exert her power to conquer these remains ; and I have observed paroxysms every second, third, or fourth day, or twice in three days, according to the kind and quantity of the matter. From this we flatter ourselves with a change of the disease to intermittent, the only chance the patient has to overcome it. I have never met with one where this succeeded. The reason is plain ; this paroxysm is regular, has encouraging signs, even a laudable sediment in the urine. All this may happen, notwithstanding an obstruction of the brain, which, still continuing, daily weakens the animal powers, and every paroxysm adds to the obstruction, till the patient languishing dies.

This is the lowest kind of the fever, for which I never found a remedy.

According to the nature and different modifications of the matter of a disease, it exists through a vast number of different series of vessels, in an almost infinite subordination, carrying blood, serum, lymph, nutritious juice, or some other highly refined, volatilized, æthereal fluid. It is not till after a certain elaboration, that these causes are perfected or produced into action ; and it is in their proper vessels, that the fluids acquire a particular morbid quality. A gout is not a rheumatism, a pleurisy is not a gout ; what would be the cause of a disease in the blood-vessels, cannot reach the lymphatics ; nor will a disease existing in this series of vessels, have any more than a remote effect upon the other. While a vitiated fluid, belonging to an inferior order of small vessels, is involved

volved in the general mass, it may be easily carried about in the course of circulation, without occasioning any great disturbance; it will exert its power as a morbid cause, which may, in some measure, be owing to the vessels themselves being too lax or rigid, more or less permeable; and though the vice of a particular fluid may, by repeated circulation, be in part subdued in the larger vessels, yet in its own it still assumes the morbid quality, because in these it does not suffer a due subaction, as in the larger vessels, when immediately under the action of the heart and arteries.

A highly acute effluent fever, whether ardent or inflammatory, has its seat in the blood-vessels. Ardeney in fevers supposes some peculiar quality of the blood, as composed of red globules, affecting the heart and arteries immediately, and stimulating them into more frequent and forcible contractions. The simplest idea of inflammation, is an obstacle in the evanescent arteries, which acts against the immediate impetus of the heart, and so occasions an equal reaction of the heart.

Ardency and inflammation may be both with and without a plethora, but they are greatly increased when this is joined to them. On the other hand, there is equal danger, when under ardency and inflammation there is a want of blood, because the force of circulation falling below the standard, it is with the greatest difficulty that we obtain a resolution and coction. This exhibits a species of a nervous fever, where the cause exists in the largest order of vessels; for a nervous disease is a morbid cause acting in a low state, where, from a defect of good blood, there is not a due force of circulation to overcome it.

But according to the order of the vessels, in which the cause of the fever exists, the disease will be more or less acute: as we pursue the morbid cause passing into different series of vessels, smaller and smaller, we insensibly lose the idea of acuteness, which is always according to the influence such cause has upon the heart and arteries; for it may at length be so far removed

removed from the heart, and become so inactive, as to occasion no more, perhaps, than something like an intestine oscillatory motion of the ultimate vessels and fibres, but which may indeed in time affect the very modus of their cohesion.

The body being considered as a congeries of vessels of various orders, carrying each the fluid proper to it, it deserves an enquiry by what means these different fluids are moved on in their canals. Setting aside the power of the heart, as the first spring of motion, the arteries bear a principal share in the movements in the animal compages; not by the internal motion of the blood propelled by the heart for the supply of all the subordinate vessels, but by their external pulsations. And here we shall see by a new, a simple, but highly artful mechanism, the impetus of the heart continued upon these vessels to which the projectile force could not extend; for this does not seem to be communicated beyond the first, and great system of vessels.

The arteries are dispersed to every part of the body for the distribution of the fluids, and to impart motion. So far as we can trace the arteries carrying red globules, we observe a pulsation: but betwixt the ramifications is comprehended an infinite number of vessels, which, from their figure and texture, are not supposed fit to propel the fluids in them. When there is a sufficiency of blood in the arteries to keep them fully distended, the intermediate vessels are, by the continual pulsation, externally compressed on all sides, and the fluids in them moved on. When this is the case, the secretions and excretions go on regularly, which give us the proper idea of an healthful state, which is no other than a continual equable circulation through all the orders of vessels. We may form some notion of this, from what is done in the lacteals and thoracic duct, which have no proper motive power in themselves, but their contents are forced on in them by the sole action of the circumjacent parts.

But when the arteries are not duly distended, little or no force will be impressed upon the intermediate vessels, to urge on their fluids. And, 1. There will be a slower motion, or some degree of stagnation in the several orders of small vessels. 2. The fluids stagnating, or moving slowly, will follow their own dispositions, and acquire some particular acrimony, too great, or too small a degree of cohesion, or suffer some other change. 3. The fluids not being quickly enough circulated in the small vessels, there will be a slower return of them into the larger, by which these will remain in a certain measure exhausted. 4. From a diminution of the general quantity, and want of force to impell the fluids into them, the remote vessels will be deprived of their proportion; hence some degree of a collapsed state. 5. Some of the small vessels will by degrees suffer distensions: which, 6. may at last bring on a redundancy in these vessels: whence, 7. must arise particular compressions and stagnations, and farther interruption to the regular easy transmitting, and refunding of the several fluids thro' all the orders of vessels. And thus from a combination of mutual causes, the original default continues and increases; so far we conceive of a disease without a fever. But though a smaller degree of a morbid cause, in the smaller vessels, may not greatly affect the circulation in the larger, yet when this cause is much accumulated, and becomes active, then, from the universal consent, or that all the fluids may not partake in some degree of the morbid cause, a general stimulus will be induced, which being communicated to the heart and arteries, the disease puts on the formal type of a fever, in order to subdue the offending cause, and restore a just balance of circulation. This transition from chronical to acute, may be either sudden, or slow and more gradual; but nature must here labour at great disadvantage, because there is defect of fluid in the arteries, or the cause of the fever acts principally, and is seated in some distant series of vessels. May not then, in a strict

strict sense, a nervous fever be sometimes called symptomatical of a cause acting in such a remote order of vessels? those only being to be accounted genuine fevers, whose causes act chiefly and immediately upon the heart and arteries. The remissness of symptoms is such sometimes, that the blood vessels appear only secondarily affected.

This sentiment, rightly pursued and improved, would let us into the right understanding of nervous diseases in general. An obstruction to motion, particular acrimony or viscosity, a distension, and sometimes redundancy in this, or the other order of small vessels, irregular compressions of these, and want of blood in the larger, will account for the various spasmodic affections, sudden and uneasy sensations, failings, depressions, disorderly secretions and excretions, irregular, and seemingly contradictory symptoms happening in chronical and nervous diseases, from the lowest degree of a vapourish ailment, to the highest capital distemper.

A rational, and frequently successful practice, is plainly deducible from the foregoing theory. In chronical diseases, we endeavour to make up the want of a due impetus from the heart, upon the smaller intermediate vessels, by an increase of muscular motion, or, what is equivalent, a long and constant course of exercise of all kinds, walking, riding, friction, bathing, by which their sluggish contents are pressed on, giving at the same time such medicines as are supposed to attenuate all cohesions of the fluids in the extreme vessels, strengthen their tone, remove acrimony, and store the blood with mild, balsamic, active, invigorating parts; and because this method of muscular motion cannot take place in acute cases, another and particular kind of exercise, *ad vasa*, is instituted, by blistering, which has a certain and powerful effect upon the whole frame. We are here likewise to give proper attenuants, together with warm remedies, to raise the pulse; and antispasmodics, because of the orgasm, which is inseparable from acuteness;

still remembering, by plenty of suitable drinks, and a greater quantity of food than can be allowed in other fevers, to keep the large vessels constantly full, that a due pressure may be communicated to the small vessels. The goodness of the pulse in this fever is determined from the fulness, not the frequency of it.

This fever disappeared for several years, but of late has again appeared, and with such different circumstances, as constitute a new species of the distemper ; it will be best understood by enumerating the several symptoms, which, tho' they do not concur in one, yet in different subjects are all to be met with.

The fever runs out to the twentieth, twenty-fifth, thirtieth, and sometimes to the thirty-fifth day : the symptoms upon seizure are generally such as are common to all fevers, coldness, trembling, and frequent alternations of heat and cold, nausea, head-ach, and vomiting ; while at other times it draws on more insensibly. A quick pain of the loins, or coccyx, presages a fever of a bad kind, as indeed an acute nervous pain any where does. In the beginning, there is sometimes an appearance of fulness and acuteness, so as to require bleeding, and the blood has not the sify crust at top ; at other times the sick are altogether without these. The first days they often sweat profusely, continually, or periodically, and the disease appears in some like intermittent, especially if the urine drops a plentiful lateritious sediment ; but as the fever advances, these sweats go off as well as the sediment of the urine, which now becomes crude, pale, and almost tasteless, and continues so till a tendency to coction, or some accident saturate it, and dispose it again to subside. The different appearances in the beginning make no alteration of the disease in the progress. From the seventh or eighth day, sooner or later, a delirium comes on, which is constant, and lasts through the fever, but for most part is not very high ; the tongue is black, chapt and parched. The sick are faint, highly dispirited, sigh heavily,

and,

and, when the fever is vehement, have a nervous or intercepted breathing, cough, and hiccough, and sometimes feel extreme coldness. The pulse is quick, small, weak, or flaccid, and, at last has frequent intermissions. We often meet with signs of colliquation, such as sweats, with the extremities cold, and pale urine, with a fatty pellicle; a symptomatical looseness or deafness, or both, accompany it to the end. What deserves a serious consideration, is the frequent haemorrhagies which happen. I have known them bleed four or five pounds by the nose in a few hours; bloody and fuscous stools, and very fetid, are observed; the disease continues not long after these, or the sick do not long survive them; a bloody expectoration, if carefully watched, will be often found. This last is seldom attended with stitch or pain, and commonly passes unheeded. A subsultus is common, but not great. They seldom die soon in the disease, though it has been fatal before the fourteenth day, and some have died with convulsion.

The disease sometimes, before it makes its attack, gives sufficient warning. Two or three weeks before, they are low spirited, have no appetite, sleep ill, sigh frequently, groan involuntarily, and feel inexpressible disorder, accompanied with great fear, concern, dejection, and perhaps slight alienations of mind. Sometimes they have an unsufferable head-ach, which, continuing through the whole fever, is the only thing complained of.

Before the formal seizure, perhaps they have exposed themselves indiscreetly to the sun, or fatigued in it, eat largely of fruit, drank bad wine, or spirits, which brings on a terrible parchedness and stricture; or they have been long under a course of anxiety, together with irregularities of diet, and manner of living, which cause a bad state of the juices, as well as a depressed state of the mind. Those on the contrary, who have not suffered from the habit and excesses of passions, or felt the severity of thinking, have lived freely, yet regularly, and have been ac-

customed to drink generous liquors with discretion, are seldom the subjects of this disease.

These are the material symptoms and principal causes of the fever, which sufficiently distinguish it from the former species. As there is such a remarkable difference in the appearances, there must also be in the cause. The disease formerly consisted in a lento chiefly; it has now plain signs of acrimony, a cause sufficient to bring on a fever of this kind, by giving an universal stimulus. The symptoms may be accounted for from this: a general constriction from this cause, will, by forcing the blood inwards, occasion coldness of the extremities, lowness, fainting, oppression, and inward struggle, the special characteristics of the fever, which it has in common with the other species, but in a more remarkable degree. Nay, this constriction and acrimony may bring on a particular stagnation, or obstruction, bursting the vessels: hence will arise hæmorrhagies and bloody excretions, partly critical, and partly symptomatical.

But the principles and reasoning here seem too general. In order to understand clearly an effect, we ought to find it in its proper cause. A general constriction of the more contractile parts, throws the fluids upon the weakest. Under this head are comprehended all the smaller order of vessels, even the arteries themselves, which become, perhaps, in their extremities simple membranes. Many of the organs and viscera, and in a special manner the brain, are weak parts: and such is the whole system of membranes and glands. The last, from the manifold contortions and implications of their vessels, and slow motion of the fluids in them, suffer the same accident as parts which appear weaker. The membranes are largely spread out, to give coverings to all the parts, to preserve their texture, to keep them in their situation, and facilitate their motions, particularly the cellulose membrane, which is propagated to the most distant and intimate part; and not the smallest vessel, perhaps muscular fibre, but is enveloped or occupied

occupied by it (a). The membranes are every where provided with glands, and the cells filled with a concrescible oil, oily mucilage, or gelatinous lymph, for lubricating and nourishing the whole body. The membranes are liable to the common indispositions of solid parts ; and the liquors in the cells may, from a peculiar taint, or ferment, be heated, fused, rendered acrimonious, and not concrescible ; and so become a rancid, eroding, infecting, oily solution, easily absorbed ; or, losing their mild adhesive properties, are turned into a foul, acrid, corrupted, vapid latex. When the liquors in the small cells are much exhausted, the cells collapse, and the membrane becomes dry, inflamed, rigid, and less pliant. There is an universal continuity of membranes, productions of those within the head, and in many cases highly irritable. Wherever a morbid cause is seated, or acts principally, thither is the greatest force of circulation determined, and the fluids derived in greater quantity, that the matter may be concocted and dislodged. But when the general mass is diminished, and the circulation languid, the weaker parts are not able to urge on their contents, nor assisted in returning them ; but the fluids accumulating and stagnating, the vessels are over charged. By this method of investigating, we discover some of the causes on which most commonly the symptoms depend ; such as stagnation and hæmorrhages, tumor, and gangrene, sudden adipose consumption, and fatty appearances in the urine, partial, wandering, internal heats, and irregular coldnesses, clammy, glutinous, chill sweats.

From an inflammation of the membranes, and an obstruction of their glands, or a stimulus fixed in them, many affections will arise, without being observed, or so much as thought of. There may be a membranous tension, or a stricture of the nervous parts, at the same time that there is a great muscular relaxation. This tension communicated to the whole system, especially the membranes of the brain, will produce appearances

(a) See Douglass's description of the peritonæum.

from which we infer the nerves to be affected. And they may be affected from causes placed either in their origin, or in their extremities.

Profuse sweats happening in the beginning, are partly from colliquiation, but chiefly from an increasing spasm, or from a state of the blood only tending to dissolution, which supposes acrimony. These sweats are frequently encouraged, but instead of proving critical, or giving any relief, they are badly symptomatical, agonistic, and no way determining. The sick are thus far indeed relieved by them, that while nature is strong enough to force them, the disease is so long kept outwards, and lying constantly bathed in sweat, and warm, the tension is taken off, and they think themselves happy: But long fatigued with such sweats, especially, when forced, if they suddenly stop, and the patient is very weak, he is overwhelmed at once. Not but that these sweats have sometimes proved salutary, at a proper time, and under certain circumstances, though this seldom happens. But I beg it may not be laid down as the constant method of nature, and let the particular genius of the fever be fully considered before it is brought into a rule. The fever may be carried off as well by other methods, perspiration, stool, urine, diminishing the bulks, altering the figures of the stimulating particles, or smoothing them, so as to render them less active, and fit for being excreted.

But to enter a little into the minutiae of things, let us see how all this corresponds with a theory. There is a constant nisus and renisus between the blood and blood-vessels. A fluid presses undiquaque; and the blood has an additional force given it by the impulse it receives from the heart, and by which it counteracts the force of arteries; for the arteries always closely embrace the contained fluids, and thereby resist the too great expansion of them.

There is a certain equilibrium here, which is the standard of health, and on either side is a disease. There is a preternatural spasm brought on by the fever;

fever; and if the moles of the blood is diminished, the capacities of the vessels will, from the contraction thus increased, be brought within the sections of their diameters, as they are found in a natural state. This fault of the vessels is removed two ways, by taking off the stricture, and increasing the quantity of the intervening fluid, or, which is the same thing, causing the fluid to expand.

The importance of sufficient distension of the arteries has been shewn, and a general defect of fluids seems to be almost essential to our fever. The more therefore that is derived from the blood by profuse sweating, or any other increased evacuation, leaves the vessels more exhausted, and there is still a less quantity of fluids to keep them distended, and to resist their contraction. Copious supplies of drink will not fill up this deficiency, for if the sweats continue, it passes off as soon as drank. Nor is it easy to gain upon the spring of the vessels when contracted within the usual capacities, especially when this contraction is increased by a morbid stricture. I have frequently thought it would be more prudent to moderate at least the flow of excessive sweating which happens in the beginning and progress of the fever, and I very often divert them, and without the least hazard. Whether they sweat or not, the fever goes on, and the disease is as often malignant and fatal when they have sweats, as when they do not sweat. The retention of sweats will only increase the fulness; and if the acuteness is thereby increased, we obtain what is chiefly wanted, and intended, by almost all our administrations. The sweats which happen in this fever, are the effect of nature. Can we then imagine such sweatings to be any ways critical in the beginning, when the fever of itself, after all the assistance of art, shall not come to a decline in less than weeks? Authors of greatest note lay not such a stress on sweating as is commonly done (a).

I have met with several instances of these kinds of fevers, in which, about the seventh day, profuse

(a) Freind, comment. 3. sweatings

sweatings came on, followed by an aggravation of all the symptoms. On the whole, after the most diligent observation, I conclude there is no relief, no security, by a method of sweating in nervous fevers.

It is of great importance to know whether the disease finishes itself by a formal, effluent, material crisis, or stated expulsion of the offending cause; or in some other less evident, but equally certain way. When a lensor has caused the fever, this lensor continuing such, is too gross to pass any of the common outlets; but, by repeated circulation, and due motion and momentum of the fluids, may be sufficiently attenuated, and the humors again rendered fit for circulation; upon which no cause of a fever exists, there is no offending matter to be expelled, and the re-assimilation of the diseased fluids is the solution of the distemper. This kind of crisis, which may be called assimilatory, to distinguish it from that which is properly depuratory, or expulsive, will be very surprising to those who wait for some more evident signs of termination, and want to have their senses satisfied by some notable excretion. When the fever is brought on by an acrimony, the case becomes more obscure and difficult, an acrimonious cause in all diseases being the most obstinate. The matter is here very subtle, and in a weak exhausted state, cannot be disengaged and accumulated, so as in a determinate time to be carried off in a sensible, regular, material crisis. In this case the disease, before the matter can be, by gradual and insensible methods, thrown out of the body, or rendered bland by a change of texture, induced by repeated circulations, may be lengthened out to some weeks, without any sensible and salutary excretion, remission of symptoms, or change of its shape. This not only gives a reason for the uncertain, and sometimes surprising lengthening out of fevers, but invalidates the ancient doctrine of crises. When we meet with a thorough crisis, which wholly, and at once rids the body of the disease, we must suppose a matter betwixt gross and subtile, and perhaps

haps mixed as to qualities, and still an increased force in the circulation, to bring it to coction, as well as to expel it. The shorter the fever, the surer we are of a sensible crisis.

A fever issuing in a stated, compleat, and salutary crisis, may be compared to a tumor which ends in a benign suppuration, an event which is always speedy. A fever without a sensible crisis, resembles those tumors which terminate by resolution, or in a languid apostemation; either of which, in many cases, it is very hard to obtain. A portion of matter indisposed for circulation, and the purposes of health, confined to, and acting in a determinate number of vessels of any order, may form some external ailment, a disease of the part. This same matter diffused, increased in quantity, or otherwise modified, may be made to occupy an entire series of vessels, or more, through the whole body, and so will create an inward distemper affecting the habit. A retroceding external ill, often excites a formidable fever: a fever as often has the matter of it discharged upon the external parts. In both cases the disease is under the same general, simple, uniform laws; and, according to the remoteness, or proximity of the causes, with respect to the heart, or force of circulation, according to the agency, attraction, or other supposed conditions or properties of matter, so will the coction and termination be, quicker or slower, more or less favourable. There is an exact conformity betwixt diseases external and internal, and one gives the clew to the other. We can only reason consequentially from things cognoscible by our senses, to those which must be judged of by their effects; and it seems to be the direct way to attain the knowledge of a disease, and to find out the true intentions of a remedy, the fitness of it, the time and manner of application, and the modus operandi.

In our fever formerly, I, for most part, observed a looseness about its height; it was generally a good sign about the fourteenth day, and no other excretion was ever relieving, happening at, or before the height, whatever

whatever it was after it. When the matter of the fever is concocted and assimilated, nature, before under an universal stricture, suffers now an easy relaxation, and the fluids, from being strongly compressed, have room to expand and occupy a greater space. The vessels thus dilated, the fluids rush upon this, or the other part, so as to occasion looseness or moderate sweats. These may be encouraged with safety and relief, because they carry off such recrement as may have been retained during the course of the fever.

I have said that a delirium continues here much longer, without so much danger as formerly. We shall not be able to account for these different appearances, unless we acknowledge some difference in the causes. In long tedious fevers, a delirium will be upon the patient for many days, who shall notwithstanding do well. A delirium proceeds from obstructions or a spasm. That the membranes of the brain may be affected with a spasm, so as to compress the substance of it, and bring on a delirium, we need not doubt, when we observe what happens in many cases, where the patient shall be delirious for weeks, or months, and without any evident cause recover of a sudden. From a sudden and violent passion, I have known deafness, blindness, and loss of speech, brought on by turns, and sometimes insensibility for some days, so that an apoplexy seemed unavoidable. This must have been altogether from a spasm, affecting sometimes one sense, sometimes another. In many diseases a delirium is brought on when the cause is very remote from the brain, which in this case is only spasmodically affected from any morbid cause existing in it. In a feverish delirium this spasm may arise from acrimony, affecting the brain either immediately or remotely. Nature easily may labour under it for a long time, because the fluids are not disposed of themselves to obstruction, or to form any mortal stases, and the acrimony may in time be rendered inactive, or washed out by plentiful dilution, or continued drains.

But when a delirium is caused by an obstructing matter, this cause is seated in the vessels of the brain itself, as well as its membranes, and is still more fixed by the general spasm, and constantly increased from a sanguineous blood, till all the parts within the brain are so over-charged, that they cannot perform their office; upon which all the functions cease, and life is destroyed.

A slow circulation in the brain, or a simple tendency to stagnation from an effæte state of the fluids, or a defect of them, has no small influence likewise to bring on a delirium. When the several motions and secretions of the brain are not, for want of a sufficient impetus, rightly performed; or the fluids stagnating, become a load upon the organs of sensation; in consequence of which the faculties must suffer. This is often the case in nervous fevers. These distinctions (a) duly adverted to, point out, in a rational way, what a delirium is in its nature, cause, duration, periods, and various appearances, especially if we consider attentively, in viewing these causes, the manner of their acting, and whether they exist singly or combined. Would it not be still farther of use, to consider drunkenness in its causes and effects, and what relation it has to this kind of fever, and the symptom now treated of?

Upon the same principles let us endeavour to carry our researches as far as we can with reason and probability, that we may be able to understand the disease thoroughly. From the general causes of a delirium, and their effects upon the brain, various disorders sometimes happen, not very obvious, but easily supposable. A lento<sup>r</sup> obstructing, or spasm compressing the brain, interrupts the circulation: hence arise slight tumors of some particular part or parts, and inflammations, which more readily happen if the humors cause erosion; or this obstruction and compression may occasion a stagnation of serum and lymph in the vessels, which after some time is not easily

(a) Cæl. Aurel. præf. lib. i. morib. acut.

put again into motion ; and if this cause increases, an extravasation may follow. To such local affections as these, are owing the destruction of some parts, as to their use ; unaccountable languishing after the fever seems to be terminated, and returns of fever in paroxysms, or a more continued form, when the original causes of the fever and delirium appear in a good measure subdued. These kind of imaginations are supported by practice. I have sometimes, in the course of the disease, met with remote signs of a palsy, such as weakness and watering of an eye, with slight inflammation, and imperfect vision of it, besides being sensibly retracted ; the blistered parts of that side not looking so florid, nor discharging so well as the other. If a suppuration, or tendency to a gangrene, follows, the patient, before restless, begins to have a sleepy oppression ; he has still something of delirium, but is for the most part pretty sensible. There may be an increase of fever irregularly, the urine changes, is by turns pale, and highly saturated, and sometimes black almost. We are strengthened in this opinion, if under these appearances the original fever is ceased, which we judge of by the time, and other circumstances ; and it is not an obscure sign of the parts being much injured, or humors extravasated, if convulsions happen. I do not say I was always right in this diagnostic of an abscess and gangrene, but it gives an opportunity to recommend a frequent anatomical inspection of those who die of fevers, to ascertain the truth of facts, and enable us to judge when the disease is simple, when complicated. When the symptoms of the fever are over-bearing, they engage all our attention ; and the appearances of a local affection of the brain, not being suspected, pass unobserved. As in some cases we are almost sure of the thing, we should in all have a regard to it, lest an effect of the fever become itself the disease and cause of death.

Other consequences of the fever, which though not mortal, yet from a labes impressed upon the brain, lay a foundation for many ills equally troublesome and

and hard to remove. If the vessels, from a long stagnation of the fluids in them, or an increased impetus upon some of them, are over-charged, and the membrane strained by a continued spasm, they must be much weakened, and liable to influxes and distensions. A stagnation of humors and inflammation, may occasion a thickening of their coats, and a schirrhous disposition of them must ensue. If from inanition, the vessels be much exhausted, some of them may collapse almost irrecoverably ; but this is a singular case, and requires a singular method of cure.

A number of ailments may proceed from such indispositions of the brain and its membranes : hence will arise different kinds of head-ach, giddiness, confusion, failings, and a long train of nervous vapourish disorders, which often are not to be removed till, in a course of years, the tone of the parts, and equable circulation through all the vessels is fully restored. When these causes are great, they may impair the faculties, and sometimes end in fatuity. These consequential ails are common to all fevers, but happen most frequently in this.

To remedy these indispositions of the fluids, which are originally the causes of the fever, and upon which consequently these effects depend, seems to be a necessary intention of cure. In this view it is proposed, that to all our warming, attenuating, stimulating, or antispasmodic remedies, cinnabar be added, and in no small quantity : this is not incompatible with the disease, nor indication in the cure of it. In a genuine, exquisite, topical inflammation, mercury, as a purge and attenuant, is beyond every thing. In universal inflammation, there is not perhaps a more powerful antiphlogistic than cinnabar, camphire, and nitre. Cinnabar is in great credit with some in serous and lymphatic stagnations, not yet extravasated. In all diseases, from an acrimonious taint, mercury is the last resort ; but most of the medicines found useful in nervous ailments, are prescribed familiarly in our fever, which is a strong argument for their being the same ;

and

and if a mild preparation of mercury is, upon parallel indications, perhaps, freely used in these, why may it not be used in this too?

There is an objection here which shall be allowed to have its weight in part: these medicines, which are boldly prescribed in chronical cases, are advised, with the greatest caution, in acute, because of their activity, which, joined to the acuteness of the disease, might bring the patient into greater danger. To obviate this, besides what is said of the usefulness of this medicine, even in acute cases, we should be well informed what acuteness is. Acuteness in fevers is only an increased motion of the blood through the heart and arteries, from a particular cause, and depends upon the velocity and momentum of the blood, all which are measured by the strength and quickness of the pulse. But in our fever, though the velocity is increased, the momentum is not increased in proportion, because the quantity is not increased, but the contrary; for most part.

And here it may not be amiss to take another view of a fever, as it subsists in a highly exhausted state, where the acuteness is not to be determined from the strength, or frequency, of the pulse. When from old age, bad habit, and languishing, too great fatigue, and starving in the beginning of the disease, and unnecessary evacuations, nature is greatly sunk, the pulse is felt even below the standard in health; a fever in this case is attended with uncommon and threatening symptoms from lowness. The highest cordial and strengthener, the cortex, must be given upon the smallest appearances of remission, lest the patient languish into insuperable deliquia, from the circulation being suspended in the brain, through a general defect of the fluids, and great inertia of the solids. In such a case I have oftener than once allowed the patient a bottle of strong wine every day, mostly by itself, besides proper food continually poured into him, without which it would have been impossible to support him.

The efficacy of the bark in the decline of long nervous fevers, or after a remission, is well known. To subdue the fever, and prevent the returns of it, when a few more accesses would wear nature out, to raise nature when the disease is much over, and the patient ready to die of mere weakness ; to prevent and remove many consequences of the fever, which without such relief might become fatal, such as stagnations, partial inflammation, and tendency to gangrene ; to answer these, and the like purposes, nothing can equal the admirable virtues of the bark ; which, if we believe those who have had the largest experience of it, is under proper circumstances a certain antidote of all fevers, where the vessels are still entire, where there is no extravasation, and pus is not already formed.

Formerly I affirmed that blistering in the ordinary time and way did harm, or had very little good effect ; now I think it has a better effect, or at least does less harm : There seems not to be such a remarkable tension, and consequently there is less disposition to be irritated. This is an argument that acrimony is the chief cause of the disease, because a lento in the blood is more difficultly circulated, and the arteries must exert a stronger nisus to make it pass the extreme vessels ; hence arises a general highly increased spasm.

But tho' blistering the back and limbs appears to have of late a better effect, this does not at all supersede the necessity of blistering the head, which seems still the most preferable wherever the head is much affected, and the disease approaches to malignity. A stimulus, so near the origin of the nerves, will procure a great degree of organisical force. This stimulus will likewise confirm the tone of the vessels and membranes of the brain, so as to prevent their undue oscillations and spastic motions, and secure them against stagnations. This effect it will have in the beginning, to prevent as much as possible, a delirium, and may be repeated from time to time to remove it. But the success of blistering will in a great measure

depend upon the quantity of the active salts of the cantharides sent into the blood ; and this will be in proportion to the largeness of the surface to which a blister is applied. There is no equal surface of any part of the body which can be blistered with so much ease and safety as the head ; the volatile active parts of the cantharides being sent plentifully into the blood, will loosen and break down the acrimonious cohesions, scour and stimulate the glands and small vessels, to a discharge of their foul, heated, stagnating contents, and dispose the whole body to a freer perspiration, by opening the several excretaries, and preparing the humors to be excerned.

In this species of the disease, the low, depressing, nervous symptoms are stronger, and the higher methods of stimulating are more necessary. In delirium, with a low intermitting pulse, subsultus, fainting, and coldness of the extremities, beside frequent blistering, we must give camphire and castor ; and if the urine is scarce, salt of amber. Small doses given frequently answer best, and the effect is constant.

Acrid cataplasms are of use here, which they were not formerly ; but must be kept no longer at the feet than they begin to stimulate, and give a right degree of heat : after taking them off, lenient pultices of bread, and milk, and vinegar, are to be applied, especially during the exacerbation, renewing them alternately, and so keeping up a constant gentle heat and stimulus, without increasing them to irritation, beyond what nature may require. But it is not easy to judge how far we may go to assist, without being said to force nature. If the pulse becomes full and strong, and is not much accelerated, they promise to answer the end proposed by them : But if the pulse becomes quick, hard, and more contracted, accompanied with smart heat, tossing and anxiety, we are to expect no good from such a stimulus.

Soft diluting liquors easily nourishing, are to be given plentifully ; such are almond emulsion, or clear water gruel, with a small proportion of cream, decoction

coction of bread and currants, with a little mace, small sack-whey, and chicken-broth, sage-tea likewise; and to these may be added both the juice and rind of bitter oranges, or any other thing, to render them sprightly and refreshing, such as wine, or some cordial water. At the same time, they should be, in general, of kinds less dissipable, that they may keep up the fulness of the vessels; and, mixing intimately with the acrimony, more effectually retain, soften, or carry it off in the common excretions.

To what I have already said in the former part of this essay of the use of wine in fevers, may be added, that the cherishing warmth which it raises, is effectual to subdue a lento or sisy indisposition of the fluids, where there is not already too much heat, or tendency to inflammation. This attenuation of a viscid in the blood, by a proper heat excited in the vessels, seems to be analogous to what passes in incubation; where, by a moderate, well proportioned adventitious heat, and the gentle action of the air-bag, the tough gelatinous white of the egg is beat down into a perfect liquid, fit to be imbibed by the delicate vessels of the yolk or placenta, so as to become a proper nourishment for the tender chick.

I have mentioned likewise the virtues of wine in this other species of the fever, in which the blood is poor and unactive, filled with acrimony, or too much colliquated. Here it deserves truly the character of a high natural cordial and alexipharmic, and must be placed first in the rank of safe and effectual remedies, as certain and agreeable in its operation, as most other things are loathed by the patient, and precarious.

The ancients made use of wine in fevers, but with great caution; but had this fever been known to them, I am persuaded they would have been liberal in the use of an apt remedy, altogether suited to the genius of the distemper, and which may be given sometimes in great quantity under the worst symptoms. The moderns have indeed recommended it, but few of

them from a solid trial. The observation of one of them (a) will be found generally true, that such as drink wine moderately in fevers, keep their strength, and easier and sooner recover. Another, in opposition to Galen, who forbids wine when the fever is vehement, when there is head-ach or delirium, or when the fever is owing to, or follows inflammation of any of the viscera, even in these cases says, that wine taken in good quantity abates the height of the fever, and by its anodyne quality, procures sleep, lessens the delirium and pain of the head, opens obstructions, and promotes concoction (b). This I can confirm from my own experience, having given it in high deliriums, head-ach, tossing and watching, and where the eyes were much inflamed, with wonderful effect, the sick having been much composed by it, and sleep procured, when opiates failed, or I durst not give them. Wine resembles opium in its virtues, operation, and effect, requires the same methods of cure, when abused, and supplies the place of it to those who have disused it: but as a fermented liquor, perhaps, it does not, when moderately used, leave behind it such a great depression and relaxation as opium, rather quickening the pulse, which opium renders slower. Wine must then be useful, as it is hypnotic, and a safe anodyne. By the agreeable sensation it gives to the stomach, it is highly refreshing, comforts the bowels, and raises the appetite: It affords a fit pabulum to the blood, filling it with warm spirituous parts, strengthens the solids, and instigates their motions. Gently assisting therefore, and cherishing the languid powers, it promotes all the natural evacuations, without increasing the distemper: for it is not conver-

(a) *Quotquot modice vino utuntur in febribus, facilius convalescunt, vires conservant, & in pristinum oxyus restituuntur.* Helmont de febr. c. 12.

(b) *Magna quantitate sumptum omnem vehementiam sedat, nam qualitate narcoticā colligit sensus, somnum conciliat, deliria & dolores acutissimos capit is imminent, aperit obstruktiones, unde oriatur putredo, & concoctionem adjuvat.* Whitakerus tract. de sang. uvæ.

tible into the matter of the disease, but, by an opposite quality, resists the particular vices of the fluids which cause the fever. If the fluids, moving slowly, are disposed to stagnate and form obstructions, by quickening their motions, it will prevent and remove such stagnations, and so becomes an effectual digestive; and till a more demonstrably certain one is discovered, I shall believe this to be the surest mean of concoction. I have tried it often, and with great freedom, and therefore can say it with some assurance, that in all great cases wine, and chiefly wine, is to be depended upon, when an useless heap of nauseating medicines must be thrown aside. Hoffman, from his own experience, recommends it, in malignant fevers, as the noblest alexipharmac (a).

But though in some constitutions it is plainly forbidden, yet if it sits well on the stomach, and does not raise the heat and thirst with an increase of the fever, restlessness, and delirium; much more, if the sick are refreshed, and inclined to sleep by it, have greater freedom from their sickness, or are better supported under it, I conclude it to be a safe and suitable remedy, which must do good; and, without fear, enjoin the continuance of it, in such quantity, time, and manner, as the disease seems to require, and the sick can bear. Nor is the choice of wine an indifferent matter: Canary answers best where a lensor prevails, accompanied with tension. But there are some, especially in long fevers, who, from a small quantity, are much heated and ruffled; such will agree better with a strong, old, sound claret, and bear it in good

(a) Et quidem in febribus malignis vino nil datur excellentius: malignitas dignoscitur ex motuum & virium defectu; nec non valde depressa sanguinis spirituascentia, ex tardo circulo ejusdem, quæ cuncta dispositionem quandam croris ad putredinem designant, igitur in iis morbis restaurare vires, spiritus erigere, circulum sanguinis liberum reddere, transpirationem movere expedit; & in eo versatur omnis alexipharmacorum virtus: quod autem vinum hæc omnia præstet, nolumus pluribus autoritatibus, quibus practicorum libri sunt pleni, confirmare, sed confugimus ad solam experientiam, qua nobis conitatur, plures ex malignis evasisse solius vini moderato usu. Frid. Hoffman. dissert. phys. med. IX.

quantity ; for by strengthening remarkably the tone of the vessels, it is useful to repress all sudden rarefaction or agitations which the fluids are disposed to ; and by storing the blood with austere and restrictive parts, hinders a further colliquation of it.

The little success which attends the common methods of cure of fevers, leads us to enquire after a more certain and effectual one. A bath applied to the whole body, acts immediately upon all the vessels ; and the virtues of it are as instantly communicated to the whole mass by the numerous bibulous veins upon the surface, and at once, as it were, the solids are relaxed, the vessels filled, the body nourished, the blood cooled, the fluids attempered, and a due degree of warmth and motion imparted. We attempt something of what is here proposed by the partial bathings which are in use, and when we make applications to different, and more sensible parts of the body, under the sounding names of frontalia, suppedalia, &c. and we have observed no small benefit even from these : But this relief is greatly disproportioned ; by doing what we do we acknowledge the reasonableness and necessity of doing much more.

Bathing of all kinds obtains now in a long tribe of chronical ills ; why not in acute ones too, regard being had to the disease, climate, manner of bathing, condition of the sick, and other circumstances ? The opinion of the ancients, as to bathing in fevers, is clear and express (a). We may be taught the thing even from the more barbarous nations, who plunge their sick into cold water, or wrap them in snow, and thus preserve them. It has been known likewise to check and effectually remove the higher symptoms of malignity, such as spots and hæmorrhage. The irrational creatures have recourse, in their heats and diseases, to bathings. Referable to this head, are many irregularities committed by the poorer sort in

(a) *Cum itaque sola febris constiterit, balneum exposcit, non secus ac cæteræ siccitates, quæcumque vel calidæ fuerint, vel frigidæ.* Galen. libro de Marafmo.

their illness, which we think very hurtful, and often wonder they are not killed by them. But if we consider things well, we shall find that what they do, tho' it may have bad enough consequences sometimes, is in the main right, and perfectly agreeable to a sound philosophy; for the disease is frequently cured by what we reckon a dangerous transgression. It is from our observations on the poor, and most uncultivated of mankind, and brute animals, assisted by some chance discoveries in medicine, that we must frame a true system, founded in, and consonant to nature, and purged of all learned uncertainties, and perverse notions of science; as well as of many imposing delicacies, devices of craft, and the impertinence of fashion. A great many reasons and authorities might be brought in favour of what I have said; but I do not intend to inforce any further a practice so much suspected, perhaps abhorred. If ever it should come into credit, a good deal of judgment will be required in the contrivance of baths, which must be suited to the nature and degrec of the fever. They should consist chiefly of water, warin or cold, simple or medicated; broths, milk, vinegar, by themselves, or compounded.

*Of the service of a warm bath in a biliary colic;*  
by ROBERT PORTER, M.D. member of the  
college of physicians, London. Vol. III. art. 27.

**T**H E service of the warm bath in biliary colics, and those severe ones, whose cure depends on procuring an entire discharge of the acrid matter within the intestines, which causes the disease (tho' not properly biliary) is little known, yet will appear from reason and experience to be so highly useful and necessary, that this distemper ought never to be treated without such additional assistance.

Sydenham has given an exact description of this disease (a); and it appears from authors, as well as

(a) Sydenham, § 4. cap. 7.

from observations made on dissecting the parts which have been affected with this disease, that it is occasioned by a stricture which sometimes has entirely precluded the downward passage, as if the intestine had been strongly girt round with a ligature. But Peyerus has excellently explained the circumstances of the ilium in the colic, and by an experiment on a living frog, sets this matter in a clear light (a).

Hence it appears that the cure of this disorder must turn upon the removal of this stricture, as well as the discharge of the irritating matter; for unless this be jointly endeavoured, we do not assist the patient with all that art might contribute to his relief. Nothing is so effectual to this end as the warm bath, which is daily found of service in a similar case, the discharge of gravel from the kidneys. The indications of cure in these two disorders, are nearly the same; and as the warm bath is, beyond dispute, of service in the one, it may probably be so in the other. In the nephritic disorder, the grand point is the evacuation of the tubulary matter lodged in the pelvis of the kidneys, or in the ureters. Bleeding serves to remove the tension and inflammation, and emollient clysters are of a double service, both as by fomenting the slender tubes, they relax the contraction, and, by unloading the lower bowels, remove their pressure against the ureters. The warm bath opens this passage yet more, greatly

(a) Torminum genesin, atque intrefusceptionis conceptionem, anni superioris æstate ranæ jucundo admodum & utili experimento oculis nostris exhibuerunt. Etenim intestina, vivente amphibio, laccissita in diversis locis, pertinacissime mox se constringebant, contentis violenter sursum deorsumque qua data porta protrusis, atque hinc inde in cumulos quasi congestis: unde quædam intestini portiones valde impletæ ac turgidæ, quædam prorsus inanes & arctissime clausæ perstiterunt; donec soluta stridura meatus liberior redderetur: intestinis autem hinc inde se constringentibus, & sive chylum sive fæces sursum deorsumve projicientibus, factum, ut illæ alicubi in molem adgestæ parietes intestini plus debito ampliarent: quod in sibi morem dilatatum intra se recepit constrictam inferioris intestini portionem, eamque sinu suo absconditam aliquamdiu retinuit: donec fibris se denuo exporrigentibus, intestinum è latibulo alterius, in apricam pristinamque sedem retinuit. Peyer. de gland. intestin.

(b) Peyer. de gland. intestin. cap. 9. p. 81.

relaxing

relaxing the abdominal muscles, peritonæum, and intestines ; the bladder is also relaxed by it, and consequently the oblique insinuation of the ureters, through its several membranes, is less liable to obstruct the evacuation of this sandy matter into its cavity.

By moderate diuretics and emollient medicines, this discharge is assisted, while anodynes suspend the pain, and procure a paralytic resolution, or a spasmodic contraction of the ureters, and thereby contribute not a little to open the passage.

These appear the most considerable methods for the relief of this disorder, which is but imperfectly managed, without the united assistance of all ; and which, used together, seem the utmost that art can furnish.

Let us now examine the methods of relieving these colics. By bleeding, the tension of the bowel is eased, a timely revulsion made, and an inflammation prevented. By giving brisk cathartics, we propose to urge forward the obstructed, acrid, morbid matter, and by the subsequent use of lenient medicines, to assist the operation of the former with less violence ; and by anodynes, not only to procure a suspension of pain, but to diminish the convulsive contraction of the intestine. So far the curative intentions in either disease, quadrate with each other. Clysters are of little significance, for they cannot pass beyond the valve at the ilium's entrance into the cæcum ; consequently their warmth cannot relax the afflicted intestine, nor their purgative quality dislodge the obstructed matter. Still the patient and physician continue alike disappointed, the excess of pain remains, and the body, obstinately costive, eludes the united effort of this method. The repetition of the more violent purgatives, by the strength of their acrid stimulus, provokes a firmer tightness and contraction, and by this means they partly frustrate their own operation ; yet the milder have already proved too weak to effect anything. By enlarging the anodynes, the pain is but momentarily mitigated ; and even these, by the costiveness

stiveness they occasion, are liable in some degree to prevent a discharge, yet the patient can never be safe, nor can the disease be cured without procuring a thorough evacuation.

But what will be the consequence of this obdurate obstruction? Either certain death, or the contents of the smaller intestines, the medicines and the liquids the patient takes, if not returned by vomit, are together stopp'd at the contracted part, and with the rarified air contained here likewise, dilate greatly the upper part of the bowel to a very wide amplitude, while that below the contraction is empty, close, and undistended, till by violent straining in the torture of this agony, the contracted part of the intestine is forced upward and inward within the widened part, too greatly stretched not to admit a ready introspection, one being so preternaturally straitened; and the other, immediately contiguous, so vastly widened beyond its natural dimension. This is the true, the formidable iliac passion, in which the vessels surrounding the coats of the intestine are doubled, the circulation through them instantly prevented, and a swift mortification immediately follows. All which might certainly have been prevented, if the single point of the intestinal stricture could have been removed to make way for the evacuation, which the strongest cathartics could not forcibly break through. Should we not then attend to this point with great diligence, and apply to obtain it a method so certainly serviceable in the nephritic case, by enlarging the ureters? An immersion in a warm bath, prepared of an emollient decoction, is an universal fokus to the lower trunk of the body; its warmth is equal, and the extent of its relaxing influence perfect and general on all the abdominal region.

We see then how nearly allied these distinct and widely different diseases are in their respective curative indications, the grand article of relaxing, opening, and procuring a free passage, being of equal importance to both. I dare not contend, indeed, that the decoction

tion of emollient plants actually carries any superior virtue in it beyond simple warm water; for the gentle heat and humidity of the latter, may prove as sufficient for the purpose.

Upon the whole, I would not be apprehended to advance the notion, that no bilious colic can possibly be cured without warm bathing; the contrary is every day experienced, for in the milder kind, where the intestinal stricture is far less straitened, the obstruction more readily yields to cathartics; yet even here, in proportion to the abatement of this tightness, the more speedily will it assist in resolving it, the more conducive will it be to quicken the operation of internal medicines, to hasten the patient's relief, and prevent any subsequent danger: for which reasons I should not even in such case, and at the beginning of the disease, omit it; and I am persuaded, in the severer kind, necessity indispensably commands us to use some method for relaxing the bowels, that an evacuation may be timely obtained, and cannot but believe many an iliac passion might have been prevented by an early conjunction of the warm bath with the other manner of cure.

I shall give some few instances wherein I have experienced the success of this collateral aid of the warm bath. A gentleman, of Spittlefields, about thirty, of a moderate habit of body, by drinking bad wine, was seized with a violent pain of the smaller bowels, which increased daily, attended with an entire costiveness; the stimulus was endeavoured to be removed by bleeding, rough cathartics; which proving ineffectual, more lenient medicines, a solution of manna in purging waters, attended with oily draughts, were made use of, not omitting opiates to relieve the convulsive spasm of the intestine; several clysters of the softer and the stronger irritating kind were injected in vain. I found him in the utmost acute pain, as if a cord had been forcibly strained round the abdomen, attended with frequent vomiting of yellow, viscid, bilious matter, and attempted once more the effect of a smart cathartic,

carthartic, followed with a decoction of fol. senn. and rad. rhei, with the addition of elix. salutis, and syr. ros. solutiv. of which he took three spoonfuls every hour : in the evening he had received no manner of benefit : a warm bath was instantly prepared from a decoction of emollient plants ; and such was the happy consequence, that even while he was in it, he had a loose stool soon followed by five more, tho' he had but one in ten days before. This copious discharge terminated his disorder ; the remaining tenderness of his belly being soon relieved by an opiate and a solution of sperma ceti.

— Eaton, a child not quite five years old, was seized with a vehement colicky pain immediately after eating two large raw codlings : several clysters had been ineffectually thrown up, and cathartics as fruitlessly taken. The abdomen was greatly swelled and hard, with excessive pain ; the pulse was frequent and strong ; the respiration quick, laborious and struggling. Bleeding was immediately performed ; the blood was covered with a leathery substance, equally thick and hard with that of any adult, robust, pleuritic patient. He took immediately pil. coch. min. gr. viij. Calomel. gr. iij. and within an hour began the use of the mixture following, & fol. Sennæ, drachm. j. rad. rhei scrup. j. coque in aq. font. q. s. ad colaturæ unc. iij. adde elix. salutis, Mannæ, ana unc. sem. f. mixtura ; sumat. cochl. ij. omni hora donec responderit alvus. A warm bath was prepared from a decoction of emollient plants : he drank also frequently a solution of manna, unc. sem. in unc. iv. of decoctum pectorale. In a few hours after twice using the semicupium, and taking a proportional quantity of the other medicines, the obstruction was removed, and five copious dejections concluded the disease, the greatest part of the apples returned crude and unaltered with the stools.

— Casleck, a plumber, about forty, was seized, September 30, with a violent colic, soon aggravated to great intenseness of pain ; either alternately fixed and

and contracted to a point, or strongly surrounding the abdomen like a tightened girth, and had received no evacuation by several cathartics, and two clysters. His pulse was strong and full; wherefore blood was immediately drawn, and a dose of pil. coch. min. cum calomel. prescribed. An hour after, he entered on the use of the following medicine. Rx fol. sen. drach. iij. rad. rhei drach. j. coque in aq. font. q. s. ad colaturæ unc. vj. adde elix. salutis unc. j. sem. m. sumat. cochl. iij. post elapsam e pilulis horam, dein cochl. ij. omni hora. He used the semicupium made of emollient herbs twice a day, half an hour each time.

4th. His agony encreased so violently last night, that five men could with difficulty detain him in bed. To quiet him I ventured on gr. j. sem. of opium; by it his pain was greatly mitigated this morning, but without any stool. He continued this day in the constant repetition of the same opening mixture, and the bath as before: Whence next morning he had five large stools, and with them an end of his disorder. A solution of sperma ceti removed the remaining soreness of his bowels.

— Lord, a plumber, a robust man, about thirty-five, was taken with a strong pain in the smaller intestines, April the 29th, which seemed like a tight bandage to gird the abdomen round. The warm bath joined with strong cathartics were of no service; his pulse was hard and strong and his pain encreased. He had made use of the warm bath along with strong cathartics, but without any effect; his pulse was hard and strong; his pain either determined to a point, and piercing his body through, or at other times binding forcibly the abdomen round. Sixteen ounces of blood were immediately taken away, and a scruple of extractum Rudii, with fifteen grains of calomel given in a pill. Three hours after he took three spoonfuls of the following mixture every hour. Rx sen. drach. iij. rhei drach. j. sal Glauberi unc. sem. coque in aq. font.

q. s.

q. s. ad colaturæ unc. vj. adde elix. salutis unc. j. β,  
mannæ unc. j.

4th. As yet he found no lasting abatement of pain, tho' the bath constantly mitigated it, while he continued in it; nor was any stool obtained, tho' he had taken the whole of the opening mixture: wherefore six grains of resin of jalap were added to the former pills, and the calomel encreased to a scruple. Three hours after the pills he took three spoonfuls every hour of the following mixture, β sen. unc. sem. rhei drach. ij. sal. Glaub. drach. vj. coque in aq. font. q. s. ad colaturæ unc. ix. adde elix. salut. unc. ij. β, mannæ unc. ij. m. He still kept to warm bathing as before: In the evening the intestinal obstruction continued equally obstinate, and with equal pain. His pulse remaining full and hard, twelve ounces of blood were again drawn away, which, like the first, was greatly inflamed. Next morning his body was opened, but not before a consumption of one and a half of the last prescribed medicine. Yet the following day, he complaining of a pleuritic pain, and his pulse continuing hard, strong and full, a vein was opened a third time with success.

I am far from attributing these recoveries singly to the bath. But when I consider the nature of this dis-temper, the manner in which it affects the intestines, the continuance of the costiveness, the severity of the torture (ever mitigated by bathing) and the large quantities of cathartics taken before a passage was made, I cannot help concluding, that the semicupium was highly useful in this relief; greatly forwarding the cure, and preventive of worse consequences, which would have arisen from a continued unremoved obstruction.

*Remarks on the management of the small-pox ;  
by Dr. THOMAS SIMSON, professor of medicine  
in the university of St. Andrew's. Vol. V.  
art. 50.*

**I**N acute diseases, the small-pox in particular, nothing requires more attention and judgment while they run their natural course, so various in different persons, than to determine what the physicians prescriptions contribute to the changes they undergo. Notwithstanding all that Sydenham has advanced, and the improvements made since his time, practitioners are not agreed in the method of cure : And I differ from him in the management of the small-pox, not in respect to the cool regimen, but to the keeping the patient constipated through the whole time of the suppuration, and the supporting the swelling of the head and hands, &c. by a constant use of the syrup of white poppies.

The damming up of the liquors in the time of the suppuration, is the cause of many patients monstrously swelling, and dying delirious with angina and peripneumony, as most of them die after the height. True it is, that in the very worst kinds before the height, they die with a moderate swelling only, and often with a small degree of a fever ; but this was so far from arising from the liquors being too little pushed towards the surface, that it arose wholly from the precipitancy of the run that way, by which the circulation was quite suffocated in the capillary arteries, and no access allowed to the serous vessels ; hence gangrenes, &c. and consequently the more in them we push the fluids to the surface, to which they naturally flow in this disease, we hasten the bad symptoms, as we likewise do in the more moderate case, where the serous vessels got supplies, but so largely, as to compress the parts about, and destroy their action. In both which cases it is evident, that some of the matter with which these vessels are destroyed, or over-loaded, ought to be taken away ; for which purpose nothing is so serviceable as moderate

derate purging, which in all other inflammatory cases, where there is a disposition to suppuration and gangrene, we always fly to as soon as possible, this evacuating a greater proportion of the vitiated serum than the good blood, and being carried on with less disturbance than a salivation can be.

Thus much for theory. In the year 1729, finding, under a severe epidemical small-pox, that some, after the suppuration, with which they seemed at first to be eased of the severest symptoms attending the eruption, fell into deliriums again: I suspected the syrup as the cause of it, and suspended its use, and distinctly found that my patients with dangerous symptoms were always more free of a delirium and fever, when not using it, and ever since that time I never proposed it, except when a great pain or restlessness accompanied the suppuration, in which circumstances I have found it a charming medicine. In this situation I began to examine the whole of Sydenham's method with attention, and what the use of the syrup, insisted upon in this disease, could be, and with what intention it was given.

Sydenham's intention (a) was to keep down the inflammatory emotions and secondary fever; and for this end he made use of it once, twice, and sometimes thrice a day, not only through the whole time of the suppuration, but long after it. But the observations which I had made in this disease of late satisfied me, that for certain, here, as in other inflammatory diseases, it raised both the fever and delirium. Sydenham owns, that he was obliged to call in another help against these feverish emotions, particularly the secondary fever; that of easy purging, though he did this against the indications which he had formed for his management of the disease in general (b); tho' by the way in which he introduces this, he seems to suspect the bad effects of the syrup, so far as to have

(a) See his letter to Dr. Cole. (b) As we see by his expression, where he pleads for it in his *Schedula monitoria*; there he calls it a *cuneus dures duro nodo*.

been a just reason for the more moderate use of it in the first steps of the disease (a). His liberal use of it was so far from quieting the feverish fits, that he acknowledges it as sharing in the cause of them ; then why such a constant use of it through the rise of the disease ? After all the observations I could make these twelve years past, I can find no good to attribute to it, but the easing of pains. I have seen children tossing with these in a most dismal manner, eased by two or three tea-spoonfuls of it, and after that go thro' their course perfectly easy, and getting timely rest. But because, when given in such straits with success, shall we lose the view in which it was at first given, and give it in all circumstances, contrary to the most plain indications ? What more just and natural, in a disease abounding with putrid matter, than gradually to make a subtraction of it, and to keep an open belly, rather than dam up the whole secretions, the natural effect of this syrup ? But it may perhaps be replied, that by this means the hands, face, and the pustules themselves would be made to subside before the blood was duly purged from the infection. This is the reason why evacuations have been objected against in the rise of the small-pox, it being judged that the suppurated matter was cast out from the mass, and that the matter which swelled the face and hands, supplied or supported it ; but these are indigested notions, which have established a very bad practice, the small-pox being indisputably a disease of the skin, which first inflames, and then suppurates ; to accomplish which, nothing can contribute more than a free circulation about the external parts of the body, which the swelling, going beyond bounds, very much impedes ; so that the increase of the swelling, and pustules themselves, should be looked upon as two different things ; these

(a) Cum vero ultimis morbi diebus haud raro accidit, ægri alvum, partim à morbi natura, partim à magna paregoricorum vi, quorum opem plane deposcebat medendi ratio, ita constipatam esse, ut tum fere suffocetur ille, tum febris ad eum gradum ascenderit, ut jam de ægro pene conclamatum videatur.

cannot rise too much ; but the other, when exceeding, is the introduction to the very worst consequences of this disease, as I have seen it in cases where the pustules themselves were few, and of a just magnitude ; and what can we expect when the body is all over oedematous, with a fever, but deliriums, peripneumonies, extravasations of blood, &c ?

To avoid these was the view with which I first became sparing in the use of the white poppies, and which since has made me venture, through the whole time of suppuration, to procure to my patients the ordinary course of their belly at least, and with agreeable success ; for I never find the small-pox keep up better, nor the patient easier, than under this regimen. So that I had between three and four dozen this year, most of the coherent kind, and some confluent, few of which had so much as the appearance of a fever upon the turn of the disease ; they drank small beer and whey, and eat boiled prunes at pleasure. In the mean time, I have known eighteen or twenty die of the same small pox, where scarce twice that number had been infected, in which all their symptoms agreed much with what Dr. Huxham describes as raging at Plymouth in 1724 and 1725 (a) ; and what surprize is it, that they should make so much havock, when, perhaps, from the beginning to the end of the disease, the patient is not allowed one stool ! To infants this management must be still more fatal, for they at no time can be easy under a constipation. I have found them five or six times a day at stool, with the best effects ; nor did I ever see a sudden collapsing of the swelled parts, by keeping up the natural course of their belly, or even making them more open, when an excessive swelling calls for it ; under which, as Dr. Mead observes in his letter to Dr. Freind, you will often find them expiring ; and therefore I have always, even under the rise of the small-pox and suppuration, kept it under ; and Sydenham allows that the open belly at these times

(a) Phil. Trans. N<sup>o</sup> 390.

is the only thing which saves children, as salivation does the elder patients. Hence an evacuation of the serum under these swellings is necessary. You agree, but say, the same outlets which nature chuses are to be sought after by us. What makes one evacuation serviceable to one, and not to another? In these different subjects, the access of serous liquors is different. In the younger, much given to purging when the vessels are loaded, the liquors readily break out by the intestines; in the elder, when they cannot make their way downward, they show their force at the salival glands, but with more hazard, because this cannot happen till all the parts about are over-distended, tho' sometimes the guts yield; but then it is usual to divert this evacuation, tho', if it were more favoured, we should frequently see the good effects of it. Wintringham (a) is of this opinion, and I have found great advantage by moderately forcing this evacuation. This is most agreeable to what Hoffman observes in his history of the epidemical small-pox, 1698: and in his third general rule for practice, in this disease, he directs the increase of the salivary flux, to be moderated, by opening the belly. And who would not suspect hazard under such terrible swellings as happen in this disease, upon the rising of a fever, with which it is often accompanied at the turn of the disease? I hope what I have advanced, will bring practitioners to enlarge their views, and not out of a rash prospect of keeping up the pustules and swelling, stifle their patients. The disease, at the time the surface of the body inflames and suppurates, abounds in a superfluous serum, which rather impedes, than advances the suppuration, and which, dammed up, heightens all the bad symptoms in the turn of the disease; whereas, by keeping the body moderately open, all the passages for the secretions are kept open, and ready to help at this period, and that without disturbing the small-pox themselves, as twelve years constant practice has confirmed to me;

(a) *Commentarium Nosologicum*, p 63.

and therefore I must recommend this method: not that I neglect the syrup of poppies, but when I use it for giving rest, and easing pain, I always, at the same time, give a clyster, which makes it much more successful.

*Of the cure of an ulcer of the lungs by blood-letting;*  
by ——. Vol. IV. art. 28.

THE ulcer of the lungs is a disease so frequently fatal, that it is a question whether ever a consumption from that cause has been cured. A new method of cure has been lately recommended, which is by no means absurd, I mean that of frequent blood-letting in small quantities. I shall offer the reasons which occur to me in behalf of this doctrine.

It is allowed, that to heal the ulcer is to cure the disease, and this method bids as fair to do that as any. Some degree of fever is necessary to the making of pus, and the quantity of pus is always, *cæteris paribus*, in proportion to the force of the heart, and the more the circulation is hurried, the constitution is the more heated, the purulent matter acquires the more virulence, becomes the sooner thin, and is the faster resorbed; while in the mean time, the circulating fluids are attenuated, exalted and expelled the faster. Thus the degree of virulence of this disease is entirely determined by the velocity of the blood. The resorbed pus occasions the hectic fever, and that again prepares new pus.

Now as blood-letting is the most effectual way to abate the force of the heart, it must of course diminish the quantity of pus, and obviate all the bad symptoms owing to it. The mere subtracting of acrimonious blood too seems to be no despicable advantage, since this diminution may easily be repaired by the addition of more laudable juices from the aliments, which in this case ought always to be of a mild kindly nature, easily elaborated, and for the most part acescent, to be administered frequently, and in small quantities

ties at a time. And besides, if bleeding takes off or abates the hectic fever, it may come to be no real expence at all, since by this means the great waste of fluids by colliquative sweats or diarrhoea will be saved. For which reasons it might perhaps be with proper cautions ventured upon even in patients which are pretty much exhausted : seeing it is certain that their vessels are still exquisitely full, and may, in proportion to their contracted state, even suffer a plethora ; which happens frequently in the weaker sex, who are often visited with regular returns of their menses to the very last stage of the disease, notwithstanding all the loss they undergo by colliquative discharges.

But the good success of exercise in the cure of consumptions may be objected to this reasoning ; since by accelerating the motion of the blood, they should rather aggravate the malady, than contribute to its cure. This fact seems at first sight to shake the doctrine here advanced, but when more narrowly considered, it rather strengthens it ; for exercise corroborates the fluid fibres, compacts the melted fluids to a just density, and enables the vessels to throw out the purulent miasma as fast as they are taken in ; and as by this means, an accumulation of resorbed pus is prevented, the hectic paroxysm is either quite cut off, or much mitigated.

In a word, the particular violence with which this disease acts, and the uncommon dispatch with which it proceeds in plethoric habits and warm constitutions, plainly indicates this practice, at least, in such patients.

Blood-letting will, for the same reasons, be equally justifiable in all internal ulcers, tho' there seems to be the greatest necessity for it, when the lungs are the seat of the disease.

I shall conclude with a few queries concerning the management of consumptions by this method.

I. Whether it is not a reasonable piece of caution to abstain from blood-letting as long as there are any well-grounded suspicions of abscesses yet unbroken in

the lungs, since bleeding in that case, would only weaken the patient to no purpose? And whether all the proper methods of deterging or expectorating ought not to be diligently used before bleeding is called in?

2. Whether it is not the most proper time to let blood, when the patient is pretty much recovered from the fatigue of his last paroxysm, after his having cleared his lungs as much as possible by coughing?

3. Whether in the very time that the blood springs, it may not be advisable to make him draw in gently astringent, drying, and balsamic steams, such as of myrrh, mastick, &c.?

4. Whether the more volatile, detergent, and antiseptic medicines, such as aloes, myrrh, and vinegar, might not be happily conveyed to the lungs in this shape?

5. Whether there may not frequently be harm in insisting much on expectoration? since by this means the ulcer is still kept crude, the plexus of new tender vessels is broken in forming, the lungs are robbed of that lymphatic and mucous moisture which would much contribute to heal the ulcer (a); and their nerves are laid bare to every stimulating cause, whence an incessant cough, and all its bad effects. May not antiseptic steams, and a mild acescent diet, issues, &c. much take off the necessity of expectorating medicines? Are mild pacifics (the preparations of our own poppies, especially their seeds, in form of emulsion) mixed in small quantities with balsamic, refrigerating, and gently deterging materials, to be allowed only at night? And even during the operation of the paregorics, will not the lungs (if their tone is much enervated, and the opiates are not too strong) when their vessels begin to be over-burdened, be able, in most cases, to expel the offending load, without the assistance of any artificial stimulus? Does not the success of

(a) This is in consequence of an observation made in an admirable essay of the nutrition of foetuses, in the first volume of Medical Essays abridged, p. 290.

opium in the catarrh, even when the mucus is thick and hard to be discharged, warrant this practice, and even invite us to it?

Lastly, would not the bark, and other medicines, which corroborate without stimulating much, frictions and gentle exercise, be necessarily used at the same time with bleeding, to assist in curing the hectic fever, and to prevent crudities, hydropic collections and tumors, and other bad symptoms which might probably be introduced by loss of blood.

*Of the cure of the cholera; by Dr. CHARLES AYTON DOUGLAS, physician in Fife. Vol.V. art. 65.*

THE cholera, which is a violent vomiting and purging of bile and other acrid humors, frequently proves fatal in twenty-four hours, especially if a wrong method of cure is prescribed: vomits, purges, and sudorifics, add oil to the flame.

If the patients be not too much exhausted, I make them drink heartily of warm water three or four times: this dilutes and blunts the acrimony of the humors, and, at the same time, evacuates them by vomit. Immediately after, I advise them to drink plentifully of a decoction of oat-bread baked without any leaven or yeast, carefully toasted as brown as coffee, but not burnt, which decoction ought to be of the colour of weak coffee. This prescription they most willingly obey, their thirst being generally great, and they always affirm that it is most grateful to their stomachs, and I do not remember that any of them ever vomited it. I have always used oat-bread, but wheat-bread or meal, well toasted, may do.

When the patient is much exhausted with violent evacuations upwards and downwards, I give him a large draught of the decoction; and, when the nausea is pretty well settled, frequently order two thirds of a grain of opium, increasing or diminishing the dose according to the age or strength of the patient.

But if the patient be convulsed, the extreme parts cold, and his pulse weak and intermitting, about twenty-five drops of liquid laudanum, in an ounce of strong cinnamon-water, is more proper, and afterwards a draught of any wine, which is most agreeable, mixed with an equal quantity of the decoction: they may afterwards take the decoction to quench their thirst, and a little wine now and then, according as they need a cordial. To prevent a relapse, repeat the opiate in a moderate quantity for some days, morning and evening; and care must be taken not to overload the stomach, or to eat any thing but what is of good nourishment, easy to digest, and grateful to the stomach.

The above prescription is to be used when the patient is quite exhausted, but in ordinary cases, the decoction itself may be trusted to.

This decoction relieved me formerly in a cholera, when the evacuations both upwards and downwards were violent, and the laudanum of no service, and effectually cured me of a relapse; since which I have cured great numbers with it.

A lady had a severe cholera, in which she vomited every thing which was prescribed for her, but upon drinking several draughts of a decoction of toasted oat-bread, she was cured immediately.

A physician assures me, that the decoction itself cured a patient who was brought very low by a cholera, occasioned by a salivation, after he had in vain tried every other thing which he could think on.

This medicine is not far different from Celsus's method of cure, for he (a) prescribes, in the beginning, vomiting with warm water to be repeated frequently; and he says they should smell penny-royal dipped in vinegar, or polenta sprinkled with wine: and a little after that he advises the patient to take wine and water mixed with polenta. And Paulus Ægineta (b), prescribes vomiting with warm water, and after that an opiate. Polenta is mentioned by several of the

(a) *De re medica*, lib. iv. cap. ii.

(b) Lib. iii. cap. 39.

ancient Greeks and Romans, as a thing generally used in their time. Pliny (a) says, that it differs from barley-meal, in so far as it is much toasted or parched; and to that he thinks it owes its astringent quality, being good for the stomach, and that it stops a diarrhoea. It is also mentioned by Hippocrates (b), and it is described by Paulus Ægineta, as made of barley fry'd, or much toasted; and he recommends it to be drank mixed with water for quenching thirst (c). And it appears from the holy scriptures to have been used by the Jews, as anciently as the reign of king David (d); from whom, or the Syrians, it is probable that the Greeks borrowed it: and seeing it was usually drank mixed with water, especially with bad water, to make it wholesome and well-tasted (e); it is probable that the Arabians, who were neighbours to the Syrians, and inhabited a dry and barren country, where little corn was produced, and coffee-berries grew plentifully, found it most convenient to make their polenta of the berries; or they might use a decoction of them toasted, instead of the polenta which their neighbours the Syrians mixed with their water.

*Histories of the separation of the villous coats of the intestines in diseases; in a letter to ALEXANDER MONRO, P. A. from Dr. THOMAS SIMSON, professor of medicine in the university of St. Andrew's. Vol. V. art. 67.*

M<sup>R</sup>. Monro has observed, in a preceding essay, that it is very difficult to distinguish when the villous coat of the intestines is abraded. The two following cases may help to clear up this point.

A maker of golf-balls, who had suffered long by a phthisis pulmonalis and fistula ani, dying, his body was opened. The abdominal viscera shewed nothing observable, till the stomach and intestines were laid

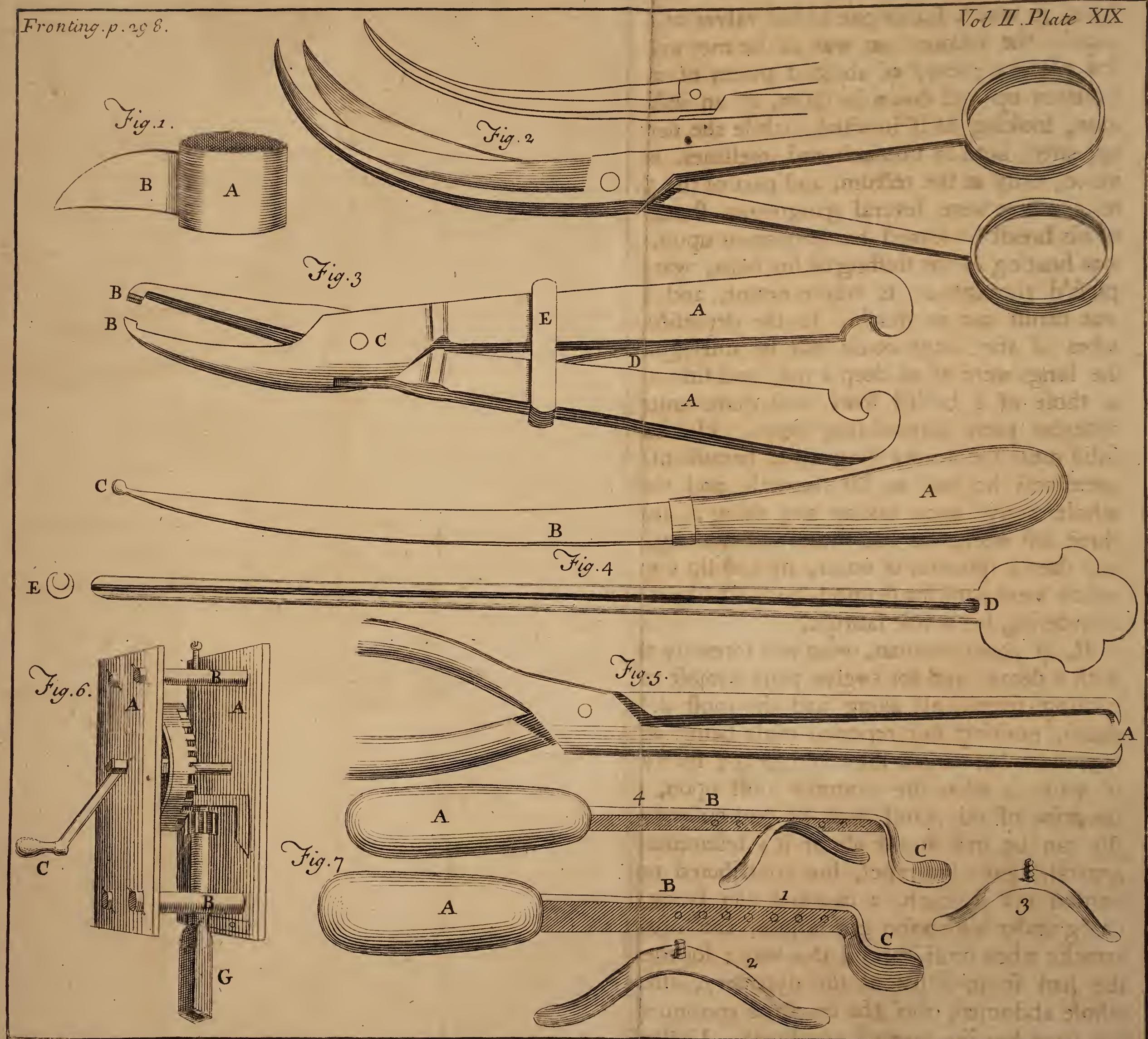
(a) Hist. natural. lib. xxii. cap. 25. lib. xviii. cap. 7. (b) Vid. de affectionibus. (c) Lib. i. cap. 78. (d) 2 Sam. cap. xvii. ver. 28. (e) Plin. natural. hist. lib. xxv. cap. 3.

open,

open, in which scarce one of the valves or rugæ were found : the villous coat was to be met with in very few places ; plenty of abraded pieces of membranes scattered up and down in them, in an inflammatory state, looking as if injected ; while the nervous coat appeared, both in stomach and intestines, no way covered, only at the rectum, and part of the colon next to it, there were several gangrenous stains : the side of his breast he leaned his instrument upon, when he was beating in the stuffing of his balls, was much depress'd throughout its whole extent, and the other was thrust out as much. In the depress'd side, the lobes of the lungs could not be distinguished, and the lungs were of as deep a red, and firm a substance as those of a boiled fowl, and quite united to the different parts surrounding them. He had eat no solid meat for a very long time, because of the great uneasiness he had in his stomach, and through his whole body, upon taking any thing ; and for the three last weeks he had swallowed nothing, but now and then a spoonful of water, sip and sip ; every drop which went into his stomach burning like a coal, and disordering his whole fabrick.

II. A young woman, who was formerly threatened with a decay, and for twelve years subject to slow remitting fevers, all along had the most delicate stomach, nothing but repeated trials being able to determine what drink she could bear ; sherry dropped in water is what she ventures most upon, tho' even the wine of this kind must be cautiously tried before she can be free in the use of it ; testaceous powders generally gave her relief, but contributed nothing to harden her stomach, a cautious diet being the only thing under which she got respite, tho' often she had attacks when most careful this way : for the last year she had frequent fits of the dysentery, affecting the whole abdomen, tho' the tenesmus continued longest, and gave her the greatest uneasiness. Under the first fit, which was the severest, she passed great quantities of mucous stuff of different forms ; some parts of it,

Fronting. p. 298.





in colour, length, and shape, appeared like a round human worm bruised ; but, laying it in water, I found it fibrous, or rather vascular, made up of larger vessels, parallel to one another, as thick as a horse's hair, between two and two of which ran other vessels as big as a human hair, of a reticular disposition : some lozenges were about the fourth of an inch diameter; but others much larger ; all of them were transparent and knotty, like lymphatics. In this form I spread parcels of it out between two and three inches in breadth, and six or seven in length ; in several of them the larger and smaller fibres appeared every way intire, in others, the fibrous part appeared one coagulated lump, like the white of an egg ; tho' even these, when carefully examined, shewed more or less of the fibrous part. Several times since, in the different attacks of the disease, the same mucous stuff has been examined, and found always of a piece with what we have described.

By both these instances it is evident, that the villos coat is in a very loose and weakly state in some people, and actually casts off, and that in such circumstances, the mildest food and liquors raise a considerable smart in the passage ; and this is a sign of such a disposition ; and if it had been duly attended to, we should have had a shorter catalogue of correctors of the humors, and much seldomer indications for purging or vomiting in the scalding of the stomach. It is true, the patient last mentioned found the greatest relief from the testaceous powders ; and, while under the dysentery, from old defæcated lime-water, prepared with guajac-wood ; but who would dream of an acid as the cause of the disorder, when the baring of the guts was so evident, where there was such a resemblance between her case and the first, where we were sure that the purest water immediately proved the stimulus, and when the healing virtues of the testaceous powders and lime-water, are as conspicuous as that of their being alkalies ? From a defect of the oleaginous slime which lines the guts, something

thing of the same symptoms may indeed appear ; but when the sense is so exquisite, as in the two cases above, and so permanent, I should always suspect some part of the coat itself to be abraded ; and as such a sense of scalding and pain gives a diagnostic, so the passing mucus is a demonstration of the disease ; and this happening daily, without pain, in the small globules, in the niches of the harder excrement, the scarf-skin daily rubs, or casts off in dry scales, so part of the crustaceous coat separates, and casts off insensibly, according to your supposition : and as I have seen it, and every one may see it, under constipation in the human kind, so Leeuwenhoek has been particular in examining it in a variety of brutes in a sound state (a). But then this mucus is different from the slimy, roping humor cast up in vomiting ; for whereas this easily incorporates with water, and has much of its colour, the mucus is of a greater consistency, lies in parcels without mixing with the humors, is of a whiter colour, and truly vascular, tho' transparent ; which distinction I had not made when I printed my dissertations, otherwise I should not then have called in question what Leeuwenhoek advances upon the head, where he tells us, that the most obscure part of the mucus pass'd in a sound state, is really solid portions of the intestines, and distinct vessels. They indeed differ much from the vessels described in our history, and are exquisitely less (b) ; but as the mucus in a sound state, is probably made up only of some of the finer vessels, so under diseases, when a greater force acts upon these parts, vessels of a different kind may likewise cast off : for by the first of these histories, we have an instance, that in weaker people, long affected in these parts, the whole vessels passing the nervous coats, separate and cast off. And by the second we see how a certain set of vessels separate from the rest, or rather keep entire, when these which had been involved with them are destroyed ; as we find that by long drenching parts of animals and plants in water,

(a) Vol. I. De muco intestinali. (b) Leeuwenh. ibid. fig. 3 & 4.  
we

we destroy the weaker, and preserve the stronger vessels: for thus, in a general dissolution of the soft, luxuriant coat of the intestines, the stronger parts may discover themselves distinctly; and this disposition to separate, is probably acquired under a long bad habit of body, as in the first example, or from the constitution of the season, which I reckoned to be the case of the second, joined with her weakness, the year 1739, wherein she suffered, being remarkable for its perpetual moisture; by which, as there was a great diminution of heat upon the surface of the body, and a relaxed state of the solids, so the smaller serous vessels would continue a great deal more loaded, and be distended, than in other circumstances; for it is certainly in the human body, as Mr. Hales observes in plants, that the course by the roots, is in proportion to the dissipation by leaves, fruit, stem, &c. And Hippocrates observes, that a moist winter or spring, produces dysenteries in the following seasons, suppose these should be dry (a). Their being long drenched in moisture, makes them easily affected upon the swelling of the humors in the rainy seasons, which was the case with my patient, and many others that year, wherein dysenteries were very common. As to the fibres which discovered themselves in so distinct a state, I am of opinion they are the same which Leeuwenhoek has described (b), but in a natural state, and subjects no ways diseased; and this may account for their not being so large as ours; and the viewing them as they lay in the intestines, implicated with other vessels, might prevent his seeing the lesser vessels running between them, which the diseased state of these parts had given us opportunity to see; tho' when this inner coat is separated, it is not always so prepared, as to exhibit to the eye the course of any of the vessels concerned in it, as in the cases where the whole coat comes off in one slough; an instance of which Tulpus gives (c); like to which, I had one communicated to

(a) Sect. 3. aphor. 11 & 12. (b) Epist. de muc. intest. fig. 7.  
(c) Lib. 3. observ. 17.

me by Dr. Young, where the length of the tubular membrane was half an ell (a); a piece of which dried I examined with a microscope, but could not so much as observe any thing fibrous in it, all the vessels being promiscuously adherent in one scurf; and probably this forms in the intestines, as the callosity does in the scarf-skin. The doctor's patient recovered very soon by anodyne medicines, which gave the parts opportunity to recover themselves, as in our patient they did by the assistance of lime-water, as happens very suddenly in dysenteries, where the greatest quantities of mucus have been discharged. Nor will so quick a renovation of this vascular part appear strange, when the history of the placenta is considered (b), and the strong arguments weighed, that the whole placenta was the product of the chorion, which in our present comparison answers to the nervous coat of the intestines.

I shall conclude this paper, with observing, that in a great many I have opened, who died of a volvulus, I always found a strong inflammation reaching the whole coats or thickness of the intestines; in one, more than a foot of the ilium was of as deep a red as vermillion, forced within the cæcum and colon, lying upon the left side, opposite to the place the cæcum lies for ordinary in the right, stuffed hard together into the bulk of my fist, so that it required a considerable force to unfold them. I found the cæcum and most of the colon in a second, stuffed together, tho' not so hard, and lying likewise upon the left side. In a third, I found four different parts of the ilium differently engaged, but the greatest was not above four inches, tho' all much inflamed; so that the inflammation seems to me to be the original disease, and to require large bleeding, rather than purges or quicksilver; tho', when the susception takes place, the case seems incurable, at least to require more Hippocrates's remedy, the bellows, than what works downwards.

(a) I suppose the author means the Scotch ell, which is less than the English, and equal only to thirty-seven inches. (b) See Medical Essays, vol. I. p. 460.

*A description of the African distemper, called the yaws, with the true method of cure ; by —— Vol. V. art. 76.*

THE yaws is a distemper epidemical, or rather endemical to Guinea, and the hotter climates in Africa, seldom failing to attack each individual one time or other of their lives, but most commonly in childhood or youth : it makes its first appearance in little spots on the cuticle, level with the skin, no larger than the point of a pin, which increase daily, and become protuberant like pimples : soon after the cuticle frets off, and then, instead of pus or ichor in this small tumor, you only find white sloughs or sores, under which is a small fungus growing out of the cuticle, increasing gradually to different magnitudes, some less than the smallest wood strawberry, some as big as a raspberry, and others even exceeding in bigness the largest mulberries, which they very much resemble. While they are coming to this height, the black hair, which grows out of the parts now covered with the yaws, changes gradually white.

It is impossible to calculate the exact time which this distemper requires to go through these different stages. Some negroes, who were in good plight, and had full nourishment, in a month after discovering the white spots, have had several yaws as big as a mulberry ; and in other negroes, that were low in flesh, and had but a poor scanty diet, in three months time none of the yaws have exceeded a common strawberry.

The yaws appear on all the parts of the body, but the most and biggest are generally on the groins, about the privities and anus, in the arm-pits and face. When they are very large, they are few in number ; and when they are many in number, they are small in size. All this time the patient is in good health, does not lose his appetite, and seems to have no other uneasiness than what the nastiness of the sores occasion, for they are not painful, except touched too roughly.

This

This is the natural appearance of the distemper, when left to itself, and in this state it will continue a long time without any sensible evacuation.

The yaws do not prove often dangerous, if the cure is undertaken skilfully at a proper time, and the patient has not undergone any course of physic for them before ; but if the patient has been once salivated, or taken any quantity of mercury, and the skin once cleared, and they appear again, they are always very difficult to cure, and often incurable : the train of the terrible symptoms, owe their original as much to the untimely and unskilful use of the mercury, as to the distemper itself ; for all the negroes who have had the yaws in Africa, and have been cured there, never have them again here, or any bad symptom which seems to proceed from them ; and in the course of nine years practice here, I never had any patient who relapsed when I was first employed, nor ever lost one, tho' I have cured numbers of both sexes and all ages.

As soon as a negroe is perceived to have the yaws coming out upon him, he must be removed to a house by himself ; or if you cannot be sure whether it is the yaws or not, shut him up seven days, as the Jews are commanded to do with their lepers (a), and in that time you may commonly be certain. As soon as you are convinced that the eruptions are really the yaws,

R. Flor. sulphur. scrup. unum, camphor. (in spt. vini sol.) gr. quinque, theriac. andromach. dr. unam. syrup. croci q. f. m. f. bolus, quaque nocte hora somni sumendus.

Repeat this bolus every night for two or three weeks, or till the yaws are at their height, which is discovered by their being at a stand, neither increasing in size or number ; then is the time to throw your patient into a gentle salivation with calomel, without any further preparation of the body. If you salivate before they are at the height, the best you can expect, is their returning again soon after the

(a) Levit. chap. xiii.

salivation. Give the calomel in small doses, that it may neither vomit nor purge. I never exceeded five grains at a time, and repeated the dose once, twice, or thrice a day, as the patient could bear it, and never raised the spitting designedly to above a quart in twenty four hours. Very often, when you have got the salivation to this height, all the yaws will be covered over with a scaly crust, which, in patients who have had many of them, makes a very terrible appearance. These crusts fall off daily in small white scabs, and in ten or twelve days leave the skin smooth and clean. Then I leave off the calomel, and let the salivation go off gradually of itself; afterwards sweat them twice or thrice, in a frame or chair with spirit of wine, and prescribe the following electuary.

R. *Æthiop. miner. unc. un. sem. Gum. guiac. unc. sem. Ther. Androm. Conserv. Ros. rub. ana unc. unam, ol. safffr. gut. viginti, Syrup. croci, q. s. m. f. electuar. capiat dr. duas mane & vesperi.*

I order for constant drink the decoction of guiacum and saffrafras fermented with molasses, while they take the electuary, and to be continued for a week or a fortnight after the electuary is done.

Sometimes one large yaw, high-knobbed, red, and moist, called the master-yaw, remains after the rest are fallen off, and the salivation is over. To subdue this, one or more salivations have been thought necessary; but it requires only to be destroyed by a gentle caustic, or mild escharotic, about an eighth or tenth part of an inch lower than the skin, and then it will cure up as easy and as soon as any other ulcer of the same bigness and figure. I commonly have used equal parts of red precipitate and burnt alum for my escharotic; and for my digestive an ounce of yellow basilicon with a dram of precipitate, and cicatrised with lint pressed out of spirit of wine, and with the vitriol stone.

After the yaws have been cured, some are afflicted with carbuncles in their feet, which sometimes render

them incapable of walking; or if they do walk, it is with much pain. This is owing to the yawy matter being confined by the hardness of the cuticle in the soles of the feet, from continually walking bare-footed. Sometimes the whole sole is affected, at other times only one spot: in time the pain brings on an inflammation and suppuration, and the patient is easy, and seems to be cured, and often is so, the yawy fungus being consumed by the suppuration. At other times, in five or six weeks, as the skin hardens, the pains, &c. begin again; and thus the symptoms go and return for years, till either the fungus is consumed by frequent suppurations, or destroyed by art. The only effectual method of cure, is by bathing and fearing to destroy the cuticle, and then proceed as in the master-yaw. Gentle escharotics are here to be preferred, and care taken to avoid the tendons and periosteum.

To children under seven years, I gave a grain or two of calomel in sugar once a-day, once in two days, or once in three days, so as only to keep their mouths a little sore till the yaws dry, and, falling off, leave the skin clean. This succeeds always, but requires a longer time than in adults. I have thrice had the mother with her sucking child under my cure for the yaws; both mother and child were full of them: two of the children I cured by curing the mothers, without giving the children any medicine but what they received from their mothers in sucking their milk: the third child, who was both bigger and older than the former two, when his mother was well, his yaws were dry, and in one white crust or scab, but did not scale off: I finished his cure with three or four small doses of calomel, and a course of æthiops. I have been well informed, that æthiops, given in large doses for three or four months, has made a cure in adults: I never tried it, but am convinced it would succeed.

The venereal disease and the yaws, as far as I have described the latter, are distinct distempers; but the symptoms of the yaws ill cured, coincide so exactly with

with those of an inveterate pox, that in most cases it will be difficult, if not impossible, to distinguish them. The symptoms are violent pains in the limbs, in some attended with nodes and exostoses, in others with ulcers, which render the bones carious. If the method which either palliates or cures the pox, should irritate and increase these, they certainly proceed from the yaws. I shall give an observation or two, where I think the case proceeded from the yaws, and leave the reader to judge for himself. I looked upon a negro-man long afflicted with ulcers in his right leg and foot, occasioned, as was supposed, by the yaws being ill cured in his childhood. He seemed to be healthy in other respects, and had undergone several salivations, &c. unsuccessfully. Two of the metatarsal bones were consumed, and the three other carious, as was likewise the os calcis, and the lower epiphysis of the tibia. I declared that these bones would rot, and not exfoliate; and that if I cut off the limb, I should not be able to heal up the stump; or if I did, he would not long survive it. However, being prevailed upon to amputate his leg, I bled and purged him twice or thrice, made an issue in the opposite leg, and one in each arm. Some days after they were digested, I took off his leg, and cured the stump with ease. About a month after he was seized with a fever, and in a few days with a violent pain and inflammation in the thigh and knee of the amputated leg. In a fortnight after the approach of the fever, I found a fluctuation of matter in his ham, and on opening it discharged a pint of matter; as the imposthume digested, the fever wore off; he recovered, and is now in health, but keeps the incisions open as an issue.

A young woman caught the yaws of her husband; as soon as she perceived the distemper, she went to a planter, who used to cure a great many negroes; there were then but just yaws enough to show the distemper. He immediately shut her up in the hot-house (as they call it here) and that night anointed

her with the mercurial unctio[n], according to Wifeman's proportion of the quicksilver. This threw her into a deep salivation, which lasted about seven weeks. Four weeks of that time she could not speak a word, and the saliva was deeply tinged with blood. After the salivation she seemed perfectly well, soon recovered her strength, and went to England in June 1728.

Some weeks after she arrived in London, she was attacked with violent pains in her arms and legs, and applied herself to an acquaintance, who gave her many medicines to no purpose, for an ulcer broke out in her leg, and another in her arm: upon this she returned to this island. In August 1729, she begged my assistance. The pains of her limbs then continued severe, and she had five or six ulcers in different parts of her arms and legs, all covered with an hypersarcosis. I immediately dressed the ulcers with gentle escharotics to destroy the hypersarcosis, and put her into a course of æthiops, with a decoction of the woods in lime-water, and gave her gentle cathartics with mercurius dulcis. After six weeks spent in this method, I found it had no effect; for after the funguses were consumed, the ulcers seemed to digest a few days, and then gleeted again, and never in the least contracted. I then threw her into a gentle salivation with calomel: after she had spit about a quart a-day for four weeks, the ulcers enlarging, and the pains becoming more violent, I was resolved to let it go off; but at night her room got wet by accident. Next day the salivation stopped, and she had a fever for a fortnight, which left her so weak and emaciated, that I was afraid she would die consumptive. I then put her into a milk diet, and ordered her a decoction of sarsaparilla and china roots for her constant drink, with one third milk. In about eight or ten days she recovered her strength and flesh, and was advised by some of her neighbours to use a diet-drink which a certain negroe made. This she used six or seven months, and dressed the ulcers with tincture of myrrh, bathing them at every dressing with warm

warm lime-water; but both they and her pains increased, the bones became carious in every ulcer, she lingred under the distemper till the end of the year 1734, and then died.

When I came to this island, it was the practice here, as soon as the yaws appeared, to give twenty-five drops of a solution of two drachms of corrosive sublimate, in eight ounces of strong rum, in the morning, drinking warm water after every puke, and they would vomit and spit all the forenoon. This dose they repeat every morning, increasing the quantity five drops every dose. In a few days they were seemingly well; but most who had been treated after this manner, either broke out again, or in time complained of gnawing pains in their bones, or were subject to ulcers in several parts of their bodies. The disease, at its second appearance, was longer of coming to an height, and required a longer course of mercury to clear the skin; and sometimes, after all, they would relapse a third and fourth time. Of these patients who were affected with ulcers, I have succeeded with some by salivation, and long courses of the æthiops, with the decoction of the woods in lime-water; many I have been foiled in, and never been able to cure, but left them, I think, rather worse than I found them: nor can I pretend to better success in those who have complained of pains in their bones, which have generally ended in nodes, exostoses, and caries. The bones of the arms and legs frequently break without any external violence.

A negroe man, after having had the yaws, complained of pains in his limbs, and had been useless in the plantation for nigh twenty years, most of his bones being full of nodes, or exostoses, and caries. His os humeri broke in the middle, without any external accident. I reduced and dressed it as a common fracture. About six weeks after, when the callus ought to have been grown strong, I found the ends of the bones move easily one upon another; and upon a gentle extension of his arm, they were a full inch

distant from one another. In about twelve months more, the os humeri was consumed entirely within an inch of the scapula, and about the same distance from the elbow. Soon after this he died tabid.

It is worth while to compare the description of the leprosy among the Jews (a), with this account of the yaws ; the two distempers seem to have a great resemblance to each other.

*An essay on the jaundice; by—. Vol. I, art 33.*

WHERE theories are employed to explain the nature of diseases, they ought to be carefully examined, lest they influence the therapeutic part of physick, which may be of dangerous consequence. The jaundice is one of those diseases which has been treated by the generality of systematic authors in a manner which is capable of being attended with bad consequences. Some of them say, that the most frequent cause of it, is an obstruction in the capillary vessels of the liver, which may be occasioned by an inflammation, schirrhous &c. This may in some particular cases be the remote cause, but can never be the immediate one, for none of the secreted liquors ever appear in the compound mass of our fluids, but only begin to display their different properties after they are separated from the other juices by the secering organs ; and even then do not seem to partake of the qualities by which they are known, till they are farther prepared, and thrown into some larger canals where their quantity gives us an opportunity of examining them. If after this they are again mixed without undergoing any new change in their composition, they do indeed evidently show themselves by their effects. Can the particles then which enter into the composition of bile, produce the effect of bile, without having been ever separated ? On the stoppage of the secretions of other liquors, they do not show themselves in their natural form any where else ; in a hydropic person, whose urine is suppressed

by the compression or obstruction of the vessels of the kidneys, and whose belly and tunica cellulosa are thence greatly distended, the waters extravasated into these cavities have not the real marks of urine in them; nay, in the discharges of the skin and kidneys, which are succedaneous to each other, we cannot observe urine drilling through the skin, nor any thing like sweat in the liquor discharged from the bladder. Hence an obstruction of the blood-vessels of the liver, considered only as such, is incapable of mixing biliary particles with the other fluids which are to circulate through the whole system of vessels, and therefore cannot produce a jaundice.

I would next observe, that if particles fit for composing bile, are capable of producing all the effects of bile, then whenever such particles are sent in large quantities from the vena portæ into the vena cava, a jaundice would be formed; consequently this always would happen when any considerable obstruction is made in the liver. Daily practice, and many observations (a), show however, that inflammations, and great abscesses, have been in the liver, and that it has been quite schirrhous, without any appearance of a jaundice; therefore obstructions cannot be an immediate cause of the jaundice.

Hitherto I have considered obstructions, as a stop put to the passage of the liquors thro' the extreme vessels, without regard to the necessary consequences of such an obstruction. These consequences are the distension of the obstructed canals, and the compression they must make upon the adjacent parts; among which, there must be several that contain the bile which has been secreted, which will therefore be forced back again into the blood-vessels, and occasion a jaundice.

To clear up this point, it will be necessary to consider the different parts of the liver where such an obstruction may be seated. If in the concave side of the liver, in the part situated near to the large biliary

(a) Boneti sepulchret. anatomic.

ducts, and if the swelling is great, it may stop the passage of the bile into the gut, and so serve as a remote cause of the jaundice: but unless the cystic bile is also prevented flowing into the duodenum, I am not convinced that this effect will follow; for the hepatic bile is a mild liquor, with a few of the proper biliary particles in it, as appears from the taste of it, and of the liver, at some distance from the gall-bladder. It is observable likewise, that most of the drains of the body are capable of transmitting bile along with their other fluids: the spittle of icteric people is bitter; their urine, and sometimes their sweat, tinges linnen yellow. Lastly, the quantity of bile constantly refunded to the mass of blood, along with the finer parts of our food, is considerable, and probably some of it is not changed by secretion; yet there is no appearance of its mixture in a natural state. Hence, the biliary lymph of the liver is capable of gradually mixing with the blood, without manifesting itself; especially since it can so quickly be sent out of the body by the excretaries; nay, tho' this should not happen, we can scarce suppose such a high colour, strong taste, and violent effects, so quickly produced by the hepatic bile, as is daily seen on the first discovery of the jaundice.

When obstructions occasion a tumor, any considerable way within the liver, near the branches of the porus biliarius, it may in part stop the course of the bile in these branches, from which it may be taken up by the ramifications of the vena cava: but such bile will be of so much less effect towards creating a jaundice, than in the foregoing supposition, as the quantity of bile hindered to flow to the common duct is less: that this is not an adequate cause to produce this disease, we have numerous examples of tumors of all sorts, observed in the liver upon the dissection of bodies which had no sign of a jaundice.

In respect of both these suppositions, it is to be remarked, that a considerable tumor must be formed before the sides of the biliary canals inclosed in their

their ligamentous sheath can be compressed sufficiently to have the effects which I have granted; and when the tumor is large enough, it much first straiten the branches of the vena portæ, which are larger than the contiguous biliary ducts; therefore, before these suffer, the quantity of bile secreted must be much diminished; if the lessening of this liquor is in the same proportion with the straitening of the vessels, the bile will pass; if the ducts cannot transmit all of it, the quantity interrupted will be small, and its effects little.

The last supposition necessary to make, is the obstruction of the smaller biliary ducts, which will have greater effect. To effect this, the liver must be universally obstructed: but then it is obvious, that the obstructed vessels are the canals which ought to supply the liquor which is to be secreted; and therefore the secretion will be prevented, which is also brought about by the compression, which the tumified vessels make on the small tubes from which the biliary canals rise, that is, on the secerning organs themselves. If then the particles which form the bile are not capable of causing a jaundice before they are secreted, it will follow, that neither on this third supposition will a jaundice be produced: this is further proved from numerous instances of the liver being entirely schirrous or suppurated, without the person's ever having a jaundice.

This view of obstructions, in different parts of the liver, gives some reason to think such a cause unfit to produce a jaundice, whatever other bad effects such obstructions may have in the animal œconomy.

If the jaundice is so far from having obstructions for a frequent cause, that they cannot occasion it, then deobstruent, aperient, resolvent, &c. medicines, and their different classes, adapted to the particular nature of the obstructing matter, will appear to be rather contrived for removing or mitigating some symptoms, and palliating some effects, than making a radical cure of the distemper.

The

The only cause capable of producing a jaundice, is the stopping of the bile in the ductus communis cholidochus, or in the cystic duct, and perhaps in the common hepatic duct of some few persons, whose hepatic bile is much stronger than it is commonly found.

Such an obstruction may depend on a great variety of causes; such as large tumors, or abscesses in the concave part of the liver, or in any other parts in the neighbourhood of the large ducts, violent inflammations, or other tumors in the coats of these ducts; the growing together of their sides, violent spasms in the duodenum, by poisons, or hysterick disorders; inflammations, and distensions of this gut, which often have the appearance of colics; and principally stones, or concretions, falling down from the gall-bladder.

Practical anatomists sufficiently show how frequently concretions are to be found here, and give numerous examples of the jaundice proceeding from stones (a); and several of the greatest practitioners in physick have taken notice of stones passing commonly when the jaundice was going off.

A stone falling down from the gall-bladder into the duct, explains all the phænomena that commonly happen in the jaundice. If a small one, a considerable share of the bile may still pass, and tho' the patient's urine becomes higher-coloured, the skin remains untinged, the gall bladder is gradually filled with bile, which gives a sense of weight in the right hypochondre; the secretion is diminished in the liver, by the great resistance now made to the evacuation of the bile, and the quantity of blood returned to the vena cava is greater, which makes a fulness in all the vessels of the body, giving the sense of fulness and lassitude, with an inclination to sleep. When a large quantity of bile regurgitates, the jaundice appears, and according to the change of situation of the

(a) Boneti sepulchret. anatomic. Morgagni epistol. adversar. act. physico medic. See the two following essays.

stone, the disease will have remissions or increase. If the concretion is so large as to press on the sides of the duct, it occasions pains about the lower part of the stomach : If the irritation it makes is great, the pains become more acute and lancinating, and the stomach sympathising, as in the stone of the kidneys, the patient vomits. If this irritation continues, the part where the stone sticks will be inflamed, and the neighbouring ones soon affected, by which a fever may be raised. When the stone obstructs the duct entirely, the excrements cannot be tinged yellow, nor will the intestines do their duty, because of the defect of bile, which, being reassumed into the mass of blood, tinges the urine, skin, eyes, &c. When the stone falls quickly into the duct, and totally obstructs it, the person becomes suddenly icterick. If the stone is soon pushed forward into the intestine, the disease is as soon removed. If several stones succeed each other soon, the disease will appear to have had remissions. If there is any considerable interval between their falling down, so many periodical returns will be made of the disease. A diarrhoea often cures this disease, or rather a diarrhoea is the consequence of the cure ; for as soon as the concretion falls into the gut, the bile, which was damm'd up, follows in a great stream, and occasions the diarrhoea, at which time the stone, or stones, will be found among the fæces.

Concretions not only exactly thus account for the appearances of the jaundice, but by them only the effects of several plain antecedent causes can be understood. This disease, for example, has been brought on by violent anger, riding, reachings to vomit, fits of an ague, and several other convulsions or agitations of the body, a stone being, by them, pushed down into the duct from the gall-bladder. This disease is not occasioned by the sole constriction of the biliary duct, without the help of any concretion ; for, in this case, the causes could not be so permanent ; e. g. the spasms would not continue so long as the disease does.

If then stones are found most frequently to give rise to their disease, without the accession of any other causes, and if other causes are so well filled for bringing down loose concretions, so often to be met with in the gall-bladder, it will follow, that in icteric cases enquiry should be made whether any cause shows itself without indications of a stone, and according to that morbid cause to prescribe ; but if either the symptoms of a stone's being engaged in the biliary passages, are blended with the others, or if there is no reason for not suspecting stones to have any share in occasioning the disease, which seldom will happen, particular regard is to be had to such concretions in the indications of cure.

It has been objected to the notion of biliary concretions producing a jaundice, that in icteric bodies no stones have been found in the ducts, and in other bodies stones have been found fixed in the ducts, without any preceding jaundice. To the former objection it may be answered, that I have already allowed other causes to be capable of giving rise to this disease ; and many cases can be supposed, where, tho' stones occasion it, yet we cannot expect they should be found. To name one instance among many : if an exhausted patient should die by the diarrhoea, which so frequently comes, or when the concretions drop into the gut, it would be in vain to expect to find them.

The other objection will as little prove what is intended by it, unless several other particular circumstances are accurately observed : as for instance, if the stone was lodged in the duct long enough to occasion the disease ; or if it has been only forced down by the agonies of death : If it is large enough, and so situated, as to hinder the course of the bile ; or, if it still might allow this liquor to pass : if the liver is sound, and fit to seern good bile ; or, if it is otherwise diseased, and has either performed little or no secretion, or has separated a liquor different from bile. For if these circumstances come out in the latter of the

the alternate ways I have proposed them, this observation will have no weight as an objection.

The jaundice ought to be treated rather more than can be said of any other disease, with one general indication of expelling stones ; and the spasms, inflammations, tumors, &c. are only to be looked on as so many concomitant symptoms, to which regard indeed is to be had in the management of the patient, while the main indication is to be pursued ; and medicines are to be applied, in very near the same form and intention, as are used in cases of stones lodged in the ureters, which bear a very strong analogy to the subject which I have just now treated of.

*Jaundice from concretions ; by Dr. THOMAS SIMSON, professor of medicine in the university of St. Andrew's. Vol. II. art. 28.*

THE following history illustrates the foregoing doctrine of the jaundice, and proves that it depends frequently on concretions in the biliary duct.

Mrs. Forbes, aged about forty, the mother of several children, of a sanguine constitution and sedentary life, awaked with an acute pain at the scrobiculus cordis, and the part of the back opposite to it, a quick, hard, and full pulse, great sickness, thirst, and heat ; she had frequent reachings and vomitings, and nothing staid on her stomach : her blood, of which a considerable quantity was taken away, was very rheumatic. The fourth, fifth, and sixth days of her illness, she raved, had the hiccup, and fainted frequently. The three following weeks, wherein she was often bled, and received clysters, as she had done from the beginning, the symptoms became easier, and her whole body tinged of a deep yellow, as was her urine, while what she passed by stool was white. Upon taking an infusion of senna and rhubarb, her stools were for some days coloured, tho' the skin was little changed, and all the symptoms abated. Shortly after the disorder returned, with vomiting, pain at

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the scrofulous, uneasiness at the region of the liver, universal itching, feebleness, and oppression, but without the fever, and the other severe symptoms. The potion was again administered with the former success; but, ten days after, in a third fit, it was of no service, tho' frequently repeated; wherefore I now ordered her pills of equal parts of Venice soap and aloes, to be taken gradually till a looseness was produced. Upon their operating, she perceived a pain strike from the gall-bladder to the linea alba, as she had frequently felt before; her stools appeared bilious, and nine stones, most of them bigger than pease, were found in them, and as many the next day, the purging being still continued: now the symptoms greatly remitted, but returned in a few days; in which fit, continuing her loose belly, she passed two more stones; and in a following fit, a few days after, four: every time the symptoms remitted, the stools were bilious.

After these she was easy for three weeks, but then had the worst fit, except the first, being feverish, and vomiting under it, &c. Three days after she took her pills, purged, but nothing appeared; next day she rode: the fifth, the pills were repeated, and she passed a stone as large as a bean, of a prismatic figure, impressed on one side, as if another stone had been adhering to it, which was the case of several formerly passed. After this she continued sometimes riding, purging, bathing in warm water, and has now recovered her health, without any further molestation from the jaundice.

The stones were of a brown colour, finely polished, and felt smooth and oily like soap; they differed in figure, but were all angular and irregular, except two; the one was of a prismatic figure, as above; the other exactly triangular, with two equal sides. When divided, they appeared composed of different crusts, tho' these were not perceptible near their middle; they were bitter to the taste, and (except some of the biggest, which equalled a hazel-nut) all swam in water;

ter ; the biggest descended slowly. We got in all twenty-six, but suspected several had passed in the first fits, before the stools were examined, since we never found the fit to yield afterwards, without passing some of these concretions.

*Jaundice, with suppuration of the liver; by Dr. JAMES DUNDAS, fellow of the royal college of physicians in Edinburgh. Vol. II. art. 29.*

A Gentleman, of a thin habit of body, had been thrice seized with the jaundice, from the forty-fifth to the fifty-ninth year of his age. Each fit was preceded, for some months, with sharp deep seated pains of the epigastrum, which began three or four hours after eating, especially after solid food, and continued an hour, or longer. These pains continued for the most part while the jaundice remained, near a month, and decreased with it ; tho' for two or three weeks, a full meal of solid food made them return. From the last attack of the pains, which happened about seven months before his death, his flesh wasted considerably, without any diminution of his strength, till the jaundice had its usual course : soon after which, the patient having gone to the country in the month of March, and having used much exercise there, enjoyed very good health for six weeks. Towards the end of April, having rode some miles in a cold day, he felt a constant internal pain in the right hypochondre, and in the epigastric region, which last increased upon eating solid food. These he did not much regard, but took of Anderson's pill, which he commonly used when costive. This occasioned a diarrhoea, which confined him for some days. The looseness being stopp'd, he rode out after dinner, on the fifth day after the beginning of this relapse, the weather being very cold. At his return home the pains were more violent, attended with a great heat and thirst, difficult breathing, an ill taste in his mouth, want of appetite, with a sickness sometimes in his stomach ; he

he could not sleep at night. Next day the jaundice appeared, and the former symptoms having increased, he was confined to his bed. The symptoms became still more violent the two following days; his pulse intermitted, and he had a severe cold fit, with great trembling both evenings. Next morning his pulse was strong, full, a little frequent, and intermitted at the eighth, twelfth, or sixteenth stroke; his breathing quick, but less difficult than it had been; his skin was very warm, and he complained of great internal heat. The pains scarce troubled him, except at a large inspiration. The pain in the right hypochondre was sharp upon lying on the left side. He had sometimes a pain about the right clavicle, which had been more frequent the day before. He was sensible of a weight in the right hypochondre, and his stomach was oppresed by every thing he swallowed. His urine was in small quantity, very high-coloured, and soon became turbid. The colour of his skin was not so yellow as it had been. Eight ounces of blood were let, which soon was covered with a thick inflammatory yellow crust. Every hour he took two ounces of an aperient decoction warm, with a spoonful of a mild acidulated cordial mixture, and at night a gentle hypnotic draught; he slept well all night. On the tenth, he was again blooded; his blood was as formerly; he did not sleep well. The eleventh, he complained of a sharp pain in the right hypochondre, but the other in the epigastrium seldom was uneasy to him; the heat of his skin was much less, tho' the internal heat was much the same: he had some appetite, and food did not oppress his stomach: his tongue was covered with a crust of a brownish white colour: his urine was more plentiful, and not of so deep a colour, soon letting fall a lateritious sediment: his pulse was weaker and smaller, and freer of intermission in the forenoon; but in the afternoon was unequal in the strength and fulness of the stroke: To the former prescriptions were added some gummy cardiac pills, with soap and a terebinthinate clyster, morning

morning and evening, and the pained parts were covered with a plaster composed of the melilot and diachylon cum gummi plasters, and gum ammoniac mixed. From this day his urine had a great quantity of a lateritious sediment, and he always slept well, except when his pacific was omitted. On the thirteenth, at night, his pulse was less frequent, equal, stronger, and more full, but intermittent in every thirtieth or fortieth stroke : his respiration was freer, his thirst less, the heat of his skin moderate, his sense of internal heat less, and the weight at the right hypochondre much diminished : he felt no pain, and could lie more easily on his left side, and he sat up while his bed was making. He had four loose stools in this and the preceding day. Next morning his pulse was free of intermission, stronger, and less frequent ; the respiration easy ; he felt no internal heat or weight, and lay easily on the left side ; the yellow colour of his skin and eyes was considerably less. This day and the following, his respiration was sometimes difficult, and his pulse intermittent ; he slept much, and had no stool till his clysters were repeated. The draught having been omitted on the fifteenth, he was restless all night, and complained of heat. The following afternoon his pulse was quicker, larger, stronger, and equal, the heat of his skin moderate ; but the complaints of internal heat were renewed, his respiration was quick and difficult, his spirits much oppressed, and he frequently sighed. The crust of his tongue was moist, and of a light brown colour, his urine turbid, as from the fourteenth : he had copious stools in the evening ; after which a blister was applied to his neck and shoulders, and his draught repeated with the usual effect. In the morning after, he was cheerful and free of sighs, his spirits lively, pulse less frequent, and breathing freer and slower ; the sense of internal heat much abated ; the crust of his tongue was dry, and of a dark brown colour ; the yellowness of his skin, &c. less ; his urine of a deep citron colour. In the forenoon of the nineteenth day

of his disease, he was perfectly easy; in the afternoon he slept some hours; and about six he awaked with an exquisite pain in his belly, which was soon followed with a continual vomiting of a black viscid liquor, and with very difficult breathing. In a few hours he died.

A considerable quantity of purulent matter was found in the abdomen, which we judged to have come out of three abscesses observed in the liver; the first was a large one, formed on the part of the large lobe near the coronary ligament; the coat of the liver, which had been raised here into a bag, was much thickened, very tender, and mostly white, but in many places red, as if injected. The second abscess was near the inferior margin of the same lobe; and the third was near the gall-bladder. The external membrane of the liver was much inflamed in many parts of the convex side, and the substance of the great lobe was very tender. The gall-bladder was very tender, and contained eight calculous concretions; the largest flat, about the bigness of a turkey-bean; the smallest, not so large as a grain of barley: they were of a black colour externally, but of a brownish grey within, and some of them had a nucleus of a white substance; they floated in a great quantity of a dark-brown, or blackish humor. The stomach also contained a great quantity of the same liquor, was much inflamed, with numbers of red points; and at its fundus, and left orifice, the vessels appeared as if injected. No rugæ were observable on its internal surface. The colon was also inflamed.

*Remarks on the hydrops pectoris, asthma, and hydropalic tumors of the abdomen; by Dr. THOMAS SIMSON, professor of medicine in the university of St. Andrew's. Vol. V. art. 59.*

WHILE water in the cavity of the thorax is in small quantity, the disease cannot be easily discovered, but when it is in a considerable quantity, it is

is discoverable not only from the weight and fluctuation which it causes upon, the side affected, but from a bulge it makes cross the breast, all along where the diaphragm is inserted ; whence it spreads, more or less, to each hand, according to the time it continues, as I saw in a patient lately, who died phthisical and asthmatic, and who, when opened, had much the same quantity of water in the left side of the chest. Hoffman says (a), that if great quantities of purulent matter fluctuate in the breast, a manifest tumor often appears on the affected side from the scapula to the ilia. How such a swelling as this should arise from fluctuating matter in the breast, I cannot perceive ; I have often seen it under diseases of the breast, but then there was something of an anasarca along with it ; in which case, I was sensible there would be something more of a fulness observable along the back, from the patient's being confined to a sitting posture, from the asthma which generally attends the anasarca ; under which circumstances I have a phthisical patient at present, who these three months has never slept but in a sitting posture, leaning back upon pillows ; when he sat up much through the day, his legs were exceeding swelled, and the posterior and inferior parts of his thighs (where the water naturally runs, and is much dammed up from the angle made there with his legs) as likewise over his back, from the angle made by his thighs ; but being obliged to keep his bed some days for his legs, the swelling left them and the thighs, but was conspicuous along the back equally on both sides ; whereas the swelling I speak of runs cross the side affected, from the under point of the sternum, to the last vertebra of the back, to a considerable breadth, so as to appear a very conspicuous bulge, and somewhat œdematosus. In such cases as have a great deal of extravasated matter in the breast, Le Dran (b) reckons, that the whole diseased

(a) Systematis, tom. III. sect. 1. cap. 7. §. 19.

(b) Observat. tom. I. observ. 31. reflect.

side of the breast is affected with this swelling, and I must own I have seen it spread to a great distance; but in all the cases of this nature which I have seen the bulge was at the place I have marked out, and the swelling turned less, as it spread to each side. Nevertheless it appears, that water sometimes gathers within the breast to a very great quantity, without any external appearance or swelling; of which Hoffman has a remarkable instance, in which water had accumulated to at least eight pounds; but then it was contained in bags, which kept it from bearing so much upon the diaphragm (a); whence arises the bulge, which I reckon the sign of extravasated humors: but I should suspect such a quantity could scarce lodge in the breast, without some external appearance, tho' he says expressly the contrary; but as he tells us, that his patient was swelled both in his legs and testicles, I suspect that the tumors in the breast had some correspondence with them, and had sent some of their water thither, as they do in most cases, as I shall have occasion afterwards to remark. While I am speaking of these swellings about the confines of the breast and abdomen, for our assistance in the investigation of diseases, I must take notice of another I have often met with in a person whose belly was much distended, particularly in the ascites, covering one half of the sternum, its cartilage, and some inches below: this raised part looks more transparent than the parts about, and pressing its middle with your fingers, you find a great vacancy between the skin and the sternum, or cartilage; it is elastic, and stretched like a drum-head. In a young dydropic girl, after the application of a caustic, I cut thro' the skin, but nothing appeared: after this, I put in my probe parallel to the sternum, and, without any resistance, carried it round below the skin its whole length; only a little air passed upon the opening it. The reason of this phenomenon I reckon to be the distension of the abdomen beyond the level of the breast, by which the skin,

(a) F. Hoffman, syst. vol. III. cap. 7. § 25.

common to both parts, is gradually raised from the sternum that rises not with the abdomen. I have found this place in old dropsies filled with water, and thence extending itself so far down the abdomen, as to reach the part where we perform the paracenthesis. In one instance, after I had drawn a quantity of muddy water, without altering the posture of the trois-cart, I happened to draw it back a little, upon which I had four pounds of pure water. Before I performed the operation, I felt distinctly a great distance between the skin and muscles of the abdomen, which gave little resistance to the touch; so that in this there were two kinds of dropsies, one in the cavity, and another between the muscles and skin. I have found a small degree of anasarca attended with a much greater breathlessness than the greatest swellings of the ascites; so that when I find a sudden asthmatic fit attack a person, without any other visible cause, if I find the least fulness of face or ancles, I make no doubt to fix upon this as the cause, especially if I find along with it a pulse suppress'd so as scarce to be felt. A lady, after being bled, and frequently vomited, and using several antiasthmatics, had a thickness of her face, which made me to examine her ancles, and they bearing the impression of my finger a very little, shewed me the first degrees of the anasarca; in which case I never doubt of the cellular substance of the lungs being less or more affected the same way; and so compressing more or less the extremities of the bronchi between which they lie; and so stopping the whole circulation, which few other causes can do; a general spasm, the bronchi universally filled with matter, or water or matter in the two cavities of the chest, being the other causes which we can suspect for it; between which there are signs sufficient to distinguish which of the species take place. In my patient, I became so positive about the cause, that when every body looked upon her as dying, and her pulse was scarce to be felt, I gave her ten grains of sweet mercury; by which her breath and pulse was restored

in the morning ; after purging two or three times, and repeating it twice or thrice, at the distance of a few days, quite recovered her of both swelling and asthma ; the first of which was so small, as to require a diligent attention to be sensible of it ; and thus, by an anatomical consideration, I was directed to the cure of my patient, as I am in many other cases, when doubting which method, of a great many in vogue, to follow. As diuretics and quicksilver, have been famed for their service in the asthma, have we not reason to suspect that an anasarca, so obsequious to these remedies, is often the foundation of the asthma ?

## Histories of morbid Cases.

*Histories of a fever and of an epilepsy; by ANDREW ST. CLAIRE, M. D. and professor of medicine in the university of Edinburgh. Vol. II. art. 18.*

**A** Boy, ten years old, of a slender habit of body, and delicate constitution, about seven years ago was feized with the confluent small pox, and reduced to the greatest extremity ; but was at length restored to health again, tho' with the loss of his left eye, and weakness of the right, which ever after was subject to inflammations. He was afterwards attacked, sometimes with a looseness, attended with feverish fits and vomitings, which yielded to gentle vomits and purges of rhubarb. He had recovered the last of these about four days, when, on the thirteenth of October, 1732, he was taken with weariness, coldness and shiverings, which were soon succeeded by burning dry heat, and then with sweating.

The fourteenth, he was free of all his complaints, except unusual weariness, and want of appetite.

The fifteenth, he was very feverish, the cold fit returned three hours sooner than two days before. He

was

was free of head-ach and vomiting ; his eyes slightly inflamed, his tongue whitish ; his breathing oppressed, with frequent sighs, his stools of a natural consistence, and his urine of a straw-colour, with a white sediment. In the evening, after bathing his legs, he sweated, and had a restless night ; his urine was thick with a sediment as before.

The sixteenth, he took a vomit in the morning of two scruples of an infusion of ipecacoanha, which operated only once, part having been lost in pressing him to drink it. Through the day he made no urine, was costive, drowsy, and inclined to rave ; his pulse soft, weak, and scarce frequent. In the evening a turpentine clyster was injected, which procured him a plentiful stool, and a large discharge of urine, with a lateritious sediment. He was restless till four next morning, then slept sound.

The seventeenth, he continued to sleep all this day, almost without interruption, till evening ; had frequent grindings with his teeth, no cold fit, nor any thing like a new paroxysm ; his pulse grew gradually more frequent, but continued soft, full, and weak. His back was blistered in the evening, he drank of an emulsion, and passed a restless night.

The eighteenth, he was sensible, but restless, his pulse small and frequent, his breathing free, his tongue dry, his urine thick, high-coloured, with a large brown sediment. The cataplasma Craton, were applied to the soles of his feet, and a spoonful of the compound decoction of snake-root given every two hours. At noon the stupor was less, his pulse sometimes stronger, but variable ; afterwards the restlessness and ravings increased till six in the evening, when he fell into a sound sleep. He passed no urine for eighteen hours, a milk clyster was injected, and he urined plentifully, but had no stool.

The nineteenth, he tossed all night, sweated greatly on his head, and frequently grinded his teeth. In the morning his pulse was weak and quick, the stupor much increased, and his countenance ghastly.

Blisters were applied to his arms and ancles, and emulsions given for his ordinary drink, and a spoonful of the following mixture every two hours, &c.  
 decoct. serpentar. comp. sine mecon. unc. iv. Sp. salin. aromat. scrup. ii. M. All this day his pulse continued variable, the stupor abated on taking the last mixture, but soon encreased again; his head and palms sweated plentifully. In the evening he urined insensibly, and could swallow nothing but liquids. The cataplasms at his soles were renewed; he was more restless in the night than before, shrieked often, urined insensibly, and the sweating of his head increased.

The twentieth, towards morning, he had some rest, and the stupor abated, his judgment less disturbed, his tongue dry, of a deep red colour, but not furred; his pulse stronger; a large discharge followed upon removing the blisters, and the sweating of his head was almost gone. Thus he continued till evening, when his pulse grew quicker and weaker, his tongue moist; he became restless, urined insensibly, raved, shrieked, and tossed till two in the morning, then grew calm. At night the cataplasms were renewed at his soles.

The twenty-first, after a soft sleep, all the former symptoms returned with more violence, while his pulse grew weaker; blisters were applied in the morning to his thighs; the emulsion and decoction of snake root continued as before. No change happened this day. In the evening he got a clyster, which he could not retain, and late at night was almost choaked with tough defluxion in his throat, which was brought up by the following mixture. & Gum. ammon. drach. sem. solvatur in aq. still. hyssop. unc. ij. Acet. scillit. drach. i. M. Of this he took thrice at an hour's distance, till he got free of the defluxion.

The twenty-second, in the morning, his pulse was weaker and more frequent, a great sweat on his head and hands, with a gentle moisture over his whole body; no defluxion in his throat; the rest as yesterday.

He took the following powder in a spoonful of sack-whey at noon, and repeated it in the evening ; the sweat did not increase and stopp'd altogether at night.

R. Rad. Serpentar. Virg. gr. viij. Castor. Russ. gr. iiiij. Camphor. pur. gr. ii. M. f. pulv. pro dosi. As soon as the sweat stopp'd his pulse became so weak and quick as scarce to be reckoned ; he had frequent deep sighs, tho' his breathing was otherwise easy. About midnight the defluxion returned, and at three of the morning he died.

His food, while he could take any thing solid, was chiefly bread-berry, stewed barley, and bread soaked in tea, or weak sack-whey. His drink, besides emulsion, was barley-water, tea, and weak sack-whey, by turns.

A child about four years old, well made, nimble, and of a florid complexion, towards the beginning of the winter was taken with an obstinate cough, night-sweats, waste of flesh, and other bad symptoms ; but by vomits, balsamics, asses milk, and country air, seemed to recover perfect health.

January the twenty-fifth 1733, he complained of a pain at his stomach, and itching at his nose ; he was restless in the night, and his sleep frequently interrupted by sudden startings. Three grains of mercurius dulcis were given him, which procured a loose stool or two.

The twenty-sixth, the symptoms continued the same, together with a disposition to rave ; a clyster was injected, which moved his belly once.

The twenty-seventh, he was brought to town from the country. At three in the afternoon he raved, scratched his nose, shrieking frequently. When he slept, he waked suddenly with startings, and cried out as if frightened : his pulse was full, strong and calm ; he was blooded, and took the following powder, which was given at night, and repeated next morning.

R. Æth. mineral. gr. v. Ent. vener. gr. ij. fiat pulvis pro dosi. Fiant hujusmodi doses iij.

In the evening a clyster gave him one stool : He raved

ved all night; except in short sleeps, which were disturbed as before. He scratched his nose almost without interruption, sleeping and waking.

The twenty-eighth, in the morning, he knew nobody, his pulse was calm, soft, and strong. The merc. dulc. was repeated, and half an ounce of tincture of rhubarb after it. About noon he was seized with an epileptic fit, which lasted ten minutes, and was succeeded by a second about an hour after. A blister was applied betwixt his shoulders; he got an emulsion to drink, and a spoonful of the following mixture, at the approach of a fit, or when it went off. Rx. Aq. still. flor. chamœm. unc. ij. Rut. unc. j. Tinctur. Castor. drach. sem. Sp. C. C. gut. xv. Syrup. caryoph. unc. i. M. In the evening, a purgative clyster moved his belly once. He passed this night as the former.

The twenty ninth, about six in the morning, he had another fit, which lasted longer than the former; the other symptoms as yesterday. The mercur. dulc. with tincture of rhubarb was repeated, but no stool following; the purging clyster was given about one in the afternoon, which was returned with a little fæces; sharp cataplasms were applied to his soles. In the afternoon he became sensible, and continued so about two hours. Towards evening the ravings returned, his pulse continued soft and calm; blisters were applied to his ankles, and he took the following draught. Rx. Tinct. rhei simpl. unc. sem. Syrup. de rhamn. drach. ij. M.

The thirtieth, at four in the morning, he had another fit still more severe, then a loose stool, and slept after: his pulse, at nine, was full, but languid and slow: The last purgative was repeated without any effect. At noon he seemed to be dying, but towards evening his pulse and looks grew better; the purgative was renewed. In the night the fits returned, and continued with little intermission. He had no stool.

The thirty-first, he took the following mixture Rx. Syrup. de rhamn. cath. drach. ij. Tinct. Jalap. gut. xv. M. This procured him a loose stool after noon.

In the evening the fits continued, his neck and body were much distorted; he had no pulse, and died next morning at seven.

During his sickness he took sometimes a little light spoon-meat, and drank emulsion, tea, and barley-water.

On opening the body, the bowels of the lower belly were all found, the stomach almost empty, no appearance of worms, or any thing else in the guts, except two ounces of a glairy substance, near the beginning of the jejunum, and a small quantity of soft fæces towards the lower end of the colon. The bile was somewhat thicker than natural, and of a dusky colour. In the breast nothing was faulty except the lungs, which adhered firmly to the pleura, and were full of tubercles and suppurated impostumes. The blood-vessels of the brain were all distended with blood, and in the ventricles about six ounces of water were found. The brain itself appeared quite sound.

*A consumption and dropsy of the breast, from a wound too hastily closed; by Dr. GILBERT WAUGH, physician at Kirkleathem in Yorkshire. Vol. II. art. 22.*

Arthur Cayley, about fifteen years of age, was of a weakly constitution, a bilious temperament, and frequently subject to the jaundice. About three months before his death, he fell, with a penknife in his hand, and received a wound about an inch below the nipple of his right breast; thence issued a small quantity of blood: the wound being deemed superficial, was soon healed up, tho' the symptoms plainly indicated that the hurt was deeper; for the patient incessantly complained of a pain in his breast, which was sometimes so violent, that he could neither laugh nor cough without torture; nor could he inspire fully without the greatest uneasiness. The symptoms were perhaps more gentle, in that he loved, and always used a milk diet.

Four days before his death, he complained constantly of an acute pain in his left side, about the situation of the diaphragm, and an unsupportable anxiety and difficulty of breathing, an intense heat within his breast, an unquenchable thirst, and excessive coldness of the extreme parts; his eyes were dim and cloudy, his urine variable, his pulse weak, slow, and sometimes intermitting; he had a tension of the hypochondria and stomach, and cold sweats about his head and breast. As death seemed inevitable, nothing remained but to give him some small relief by a pectoral decoction, the inspiration of the fumes of the same made warm, and mixed with vinegar. Blisters were likewise applied to the extremities, but the symptoms increased till death put a period to them.

His body being opened, the skin on the left side appeared blotted and discoloured in a singular manner, and the callous vestige of the wound clearly showed the progress of the knife into the cavity of the thorax. The pleura on the right side was thicker than natural, and in some places almost cartilaginous, strictly adhering to the ribs. At the vestige of the wound, was a remarkable cohesion of the lungs to the pleura. Having separated the right lobe of the lungs, there appeared, at the part adhering to the pleura, a hard schirrous lump, almost as big as a walnut, under which was a large collection of pus, which had also made its way into the other lobe of the lungs. In the left side of the thorax was contained eight pounds of water, in which subsided a thick white water, not unlike half-melted suet. The left lobe of the lungs was not the bigness of one's fist, and no way resembled the substance or figure of lungs, but a putrid lump. The pleura on this side was quite wasted. The heart, with its vessels, was very small, void of blood, and on all sides firmly attached to the pericardium. The colour of the liver was good, but its substance somewhat harder, and the size larger than natural. The gall-bladder was turgid, with bile of a blackish colour.

*An asthma accompanied with palpitation and flying pains of the breast and shoulder ; by Dr. ROBERT LOWIS, fellow of the college of physicians at Edinburgh. Vol. II. art. 23.*

A Healthy boy, about five years of age, after playing among wet grafts, was suddenly seized in the night with a suffocation, of which he was relieved by bleeding, but ever after had not so free and long breathing as usual.

In November 1721, being then about eleven years of age, he was affected with a pain of his right shoulder and breast, which gave him great uneasiness in breathing : his pulse at first differed not much from natural, but in the progress of the disease became feeble, frequent, and unequal : he had a cough, but it was not very troublesome ; his appetite was little, and his thirst moderate ; his urine generally in small quantity, of a reddish colour, and when it separated, let fall a copious brown sediment. Towards the end of his illness, he had a pulsation at the pit of his stomach ; his testicles, scrotum, and legs swelled chiefly towards evening, at which time also his pains were most violent, and often obliged him to lie upon his elbows and knees, in which posture he always found most ease.

The remedies used were repeated bleedings, to the amount of forty ounces in less than three weeks, by each of which he was relieved ; but the pains returned in three, four, or five days ; the blood was sлизy ; he took several vomits and purges, infusion of stone-horse dung, sperma ceti, with volatile salts, expression of hog-lice, and other medicines to the same intention. Spirituous liniments were applied ; and last of all, his pains still returning, he took forty or fifty grains of sweet mercury in small doses, which, without any considerable evacuation, freed him of his pains and other symptoms, after six or seven weeks illness.

In June 1723, he had a second return, only in this the symptoms were more uneasy : bleeding had no better effect than before ; mercury given as formerly, had not like success : tepid baths, with cupping and scarifying, where the pain was not afflicting, gave some relief ; the pain and other symptoms yielded gradually, and by the help of asses milk, and moderate exercise on horseback, after two months illness he recovered.

The third and last return was about the beginning of September 1724, the symptoms were worse than in the former ; repeated bleeding gave but short relief, mercury none at all ; the pulsation at the pit of the stomach became much more observable ; there was a considerable tension in the region of the stomach and right hypochondre. About a week before his death he complained of a slight, dull pain in these parts, but had no vomiting, nor signs of greater fever than before ; his legs and face swelled, the rest of his body was much emaciated, his breathing was very laborious, with a short cough, and little expectoration. What he did spit up, with much trouble, as he drew near his end, seemed to be a brownish pus mixed with a little blood. His former posture of lying gave him but little relief ; the most he had was standing, sitting, or leaning forward on pillows. In this posture he died October the eighteenth.

His body being opened, the stomach was found much distended, and upon the bottom of it, towards the left side, there was a mortification about the breadth of the palm of a man's hand. The liver was large, but otherwise sound ; the lungs were attached to the pleura in two or three places, otherwise pretty sound. The whole surface of the heart was closely united to the pericardium, and each of its ventricles were capable of containing a gill of liquor.

*A phthisis occasioned by a tumor under the left scapula; by Dr. CHARLES AYTON-DAUGLAS, physician in Fife. Vol. V. art. 60.*

SHEWED me a large tumor under his left scapula, which seemed to be contained in a bag immediately below the teguments. He had had a pretty severe cough, and a stitch in the place where the tumor formed before the tumor began. It gave him no uneasiness; his appetite was good, and he had strength enough for working the hardest country-work, till about a month before, when he accidentally hurt it; upon which he was seized with a violent cough, which molested him night and day. He spit up a great deal of yellow, thin, stinking pus, mixed with blood; his pulse was quick and hard, his appetite was bad, he was very hot, and much emaciated.

I advised my patient, fearing he should die from the large discharge, if the tumor was opened, to feed on nothing but Hippocrates's ptisan, or oats well husked and prepared after the same manner, or rice as long boiled, milk warm from the cow, or buttermilk; and to take every morning, and at four in the afternoon, two or three tea-cup fulls of an infusion of leaves and flowers of coltsfoot, leaves of maiden-hair and nettles, and the following pills:

R. Terebinth. Venet. unc. sem. Glycyrrhiz. pulv. q. s. ut fiat massa pilulis formandis idonea, capiatur una gr. quatuor, omni quadrihorio.

He continued under this regimen for a fortnight; the tumor became less, and the symptoms milder; however, the cough remained, and he was still hectic. Having little hopes of subduing this disease by the common methods, I made trial of one recommended by the ancient Greek (a), and the modern Ægyptian (b) physicians. A seton was put in parallel to the ribs, and betwixt two of them which were immedi-

(a) Hipp. Aph. I. vii. (b) V. Prosp. Alpin. de medic. Ægyptior. ately

ately under the most depending part of the tumor, but the tumor itself was not pierced. Within eight days the hectic fever went quite off, the cough grew easier, and the pus which he spit up became of a better colour and consistence, and that which was evacuated plentifully by the seton, was pretty good, and turned gradually better. He recovered his flesh and strength very fast, and in a little time the bag under the scapula was quite empty. Some days after he began to exercise himself on horseback, continuing the regimen already mentioned, except the pills.

Whenever he chanced to be seized with a fit of coughing, the air was forcibly driven from his lungs into the bag, and distended it to about the bigness of a quart bottle; and when the fit was over, the air was gradually forced back again. I prescribed a compress and bandage moderately tight, and the same regimen as formerly. The sides of the bag were gradually consolidated, and within five weeks after the air came into the bag, it was quite healed; and about two weeks after that, the seton was taken out: by this time he had fully recovered his appetite, vigour, and flesh, and has continued in a firm state of health ever since.

From this history, and from the case of a boy made first apoplectic, and then stupid by a fall; and indeed from the good effects of issues and setons in many cases, it would appear that obstructing or heterogeneous matter in the blood, flows much by such drains. Is it not reasonable then to make trial of setons in dangerous diseases, such as nervous fevers, where the head is much affected, pleurisies, peripneumonies, &c? I have caused setons to be put into patients in very dangerous fevers, where the head was much affected, with remarkable success.

*An epilepsy from an uncommon cause; by Dr. THOMAS SHORT, physician at Sheffield, and F. R. S. Vol. IV. art. 27.*

**I**N July 1720, a woman about thirty-eight years of age, had laboured twelve years under an epilepsy, which, from one fit in a month, was come to four or five violent ones every day, each continuing an hour, or an hour and an half, by which she was rendered mopish and silly. Evacuations of all kinds had been tried, the epileptic and cephalic tribe of medicines, and many other, used in vain, the disease growing more severe. Her fit always began in her leg, toward the lower end of the gastrocnemii muscles, and, in a moment, reached her head, threw her down, foaming at the mouth, with terrible distortions of the mouth, neck, and joints. Whilst I talked with her, she fell down in a fit. I examined the leg, and found no swelling, hardness, laxness, or redness; but suspecting from her fit beginning always at that part, that the cause lay there, I plunged a scalpel about two inches into it, where I found a small indurated body, which I separated from the muscles, and took up with a forceps; it proved a hard cartilaginous substance, or ganglion, about the size of a large pea, seated on a nerve, which I cut asunder, and took out the tumor: she instantly came out of the fit, and never after had another fit, but recovered her former vigour both of body and mind.

*A suppression of urine from a palsy in the bladder; by Dr. FRANCIS PRINGLE, late president of the college of physicians in Edinburgh. Vol. II. art. 32.*

**A**Gentleman, about seventy-three years of age, of a healthy constitution, and full habit of body, was seized, on tuesday June the twenty-second, with a total suppression of urine, attended with pains about

the os pubis, region of the loins and kidneys, and with frequent vomitings of a darkish-coloured substance, resembling coffee; he had also frequent returns of the hiccup, and complained of a scalding heat when he swallowed any drink, especially when it had the least acrimony. He continued two days in this state, notwithstanding his having been let blood, and several clysters, and a decoction of the aperient roots with sal prunellæ.

The catheter was introduced, and three pints and an half of a dark-coloured mossy urine were voided; after which the vomitings and hiccup ceased, and he found much relief every way; emollient terebinthinate clysters were injected, and the aperient diuretic decoction, with some marshmallow-root added to it, continued.

Next day, having passed no urine, he was put into a semicupium, which availing nothing, the catheter was again introduced, and a less quantity of urine taken away than before; the catheter met with no resistance, neither was there any appearance of stone, ulcer, or caruncle in the neck of the bladder; nothing came away except a drop or two of coagulated blood, and some sandy sediment.

Saturday evening the catheter was again introduced, and his pulse being frequent and strong, he was bled. On Sunday the catheter was introduced for the fourth time; he was again put into the semicupium, and a laxative purging ptisan given, which answered well enough.

From the first time the catheter had been introduced, the black vomitings left him, but he was troubled with the hiccup from time to time, which increased on the twenty-ninth of June, with a low depressed pulse, and coldness of the extremities; a blister was applied between his shoulders at night; and besides the former medicines, he took frequently a spoonful of the solution of balsam of copaiba, to which some drops of the chemical oil of mace, dissolved in sugar, were added. He slept well all night, was

was free of the hiccup, and had a good pulse next morning, but passed no urine till the catheter was again introduced. On removing the plaster he felt some sharp pains resembling those of a strangury. He drank plentifully of an emulsion of gum arabic, and at bed-time took a bolus composed of pulv. rad. valerian. gr. x. castor. russ. sal. succin. camphor. ana gr. v. extract. opii, gr. j. syrup. caryoph. f. q. which eased his pains, and procured him a pretty good night. At the same time he continued to take the solution of balsam of copaiba.

The three following days he continued much in the same way, the catheter being introduced every day to evacuate the urine.

July the third, he was ordered to drink plentifully of Piermont water, and Rhenish wine; and pareira brava was added to his ordinary diuretic decoctions.

The fourth and fifth, there was scarce any change.

The sixth, seventh, and eighth, he rode out sometimes in a chaise, and continued in the use of the same medicines, only half a dram of the oil of juniper, and as much æthereal oil of turpentine were added to six ounces of the copaiba mixture.

The ninth or tenth, he had a gradual slow discharge of more than a pound of urine, without the assistance of the catheter. He continued the Rhenish wine and Spaw-water, with riding, for some time, making rather more urine than he formerly used to do, and has continued in good health ever since.

*The menses regularly evacuated at an ulcer of the ankle; by Mr. JAMES CALDER, jun. surgeon in Glasgow. Vol. III. art. 29.*

**A** Healthy labouring girl strained her right foot at fifteen years of age, and again at nineteen, when a sordid ulcer broke out in it, which was healed up in three weeks; soon after she complained of a disorder through all her body: at twenty the men-

strua appeared for the first time, but in very small quantity.

The former disorders continuing, she was blooded at the saphæna of the right foot; soon after an ulcer formed in the ankle, which continued five years, a considerable share of the os calcis having come out. This ulcer sent out in two or three days of each month, as large a quantity of blood as women generally pass in their courses, and this in regular periods, without any in the intermediate time. Some days before this she complained of great pain in her foot, which became tolerably easy as soon as the evacuation was passed. She continued in this way till, in May 1733, the bones being cast out, and the ulcer beginning to heal up, while her body turned more plump and strong, the menses came the natural way, in much the same quantity, and continuing the same time they used to do at her foot, which bled none. She had a second return of the courses in June, but in July she passed the natural period, and her foot became more painful; but the menses returning, as in other women, the pain ceased, and she has ever since been in health, with her menses regular in the natural way, without any other evacuation than a small quantity of pus at the ulcer, which continues a little open.

*An account of a malignant lues venerea communicated by suction in the city of Cork, 1728;*  
by EDWARD BARRY, M.D. F.R.S. Vol. III.  
art. 21.

**A** Woman who was commonly employed to draw the breasts of lying-in women, communicated the venereal disease to several persons. Upon examining her, I observed a small ulcer at the root of her tongue, and a large recent cicatrice on the inner part of the under-lip. She denied that she had ever any sore there; but upon acquainting her with the danger she was in, begged to be salivated, and in the salivation owned that she had an ulcer where the cicatrice remained,

remained, which she cured by two or three doses of physick, and a gargle made of woodbine, and some other ingredients; and said she concealed it, because she imputed it only to cold, and was afraid, if known, it might for ever destroy her business and character.

This woman, who had communicated this infection to so many, had no eruptions on her body, and the infection never made any progress beyond her mouth. May not this be accounted for from her particular way of life, the humors being discharged by an almost constant salivation, and the parts deterged and cleansed by a gargle of breast-milk?

Some women, whose breasts were drawn by her, had never any marks of infection; but the few who escaped, were such whom she attended after the large ulcer on her lip was healed. But the case of a lady was very remarkable, whose breasts were drawn twice a-day by her, when she communicated the infection to all others who came in the way. A violent confluent small-pox seized this lady immediately afterwards, and she never had any marks of infection. This disease was remarkable for its malignity, and for its swift progres, usually finishing its course in three months. The nipple first became slightly inflamed, which soon produced an excoriation, with a discharge of a thin liquor; from thence red spreading pustules were dispersed round it, and gradually spread over the breast, and produced ulcers. The pudenda soon after became inflamed, with a violent itching, which terminated in chancres, attended with a small discharge. In a short time after, pustules were spread over the whole body. The husbands of several had chancres, which quickly communicating the poison, produced ulcers in the mouth, and red spreading pustules on the body; but such of them escaped, who had timely notice of the nature of the disease before the pudenda were affected. Some infants received it from their mothers; to the greatest part of these it was fatal.

The activity of this poison was so great, that I immediately directed a mercurial salivation to even such as were but lately and lightly affected, and ordered it to be brought on by repeated unctious, in a small quantity, with a few grains of calomel internally, and continued the salivation five or six weeks. I have often observed, that where the salivation easily rises on the use of a small quantity of mercury, the cure is uncertain, and that the same inconvenience often attends a large salivation, accompanied with a great inflammation. The first of these is frequently the case of women, and such whose fluids are naturally dissolved, and whose vessels are relaxed and tender; the other, of persons of a reverse constitution. In the former, mercury passes off too quickly, without penetrating into the small canals, where the seat of the disorder frequently lies; in the other, the viscidity of the humors opposes their dissolution, which must be always previous to a free and effectual salivation: for whenever the fluids are heated beyond their natural degree, they become viscid; and all violent inflammations being attended with this effect, must therefore counteract the operation of mercury. Previous warm bathing, gentle evacuations, if there is a plenitude in the vessels, and a diluting regimen, prevent these evils; after such preparation, a less quantity of the medicine will produce the desired effect with ease and efficacy.

In the lax habit, neither is bathing nor much diluting necessary, till the salivation appears; but the medicine must be repeated at a proper distance, and in a small quantity, to answer this end; though in some cases of this nature, it may with more success be determined to the surface of the body, and made sudorific.

The venereal disorder returned to some after a regular salivation, but was entirely removed by the following method, which I made use of to all who had this infection in a violent degree.

I ordered a machine to be made of oak, the cavity of which was four feet long, and sixteen inches deep, that a person might sit in it with his legs extended ; a cover, moving in a groove, was so adapted, that it closed every part round the body. When this machine was to be used, it was filled to about the height of eight inches with a strong bath of herbs, with sal gem. dissolved in it. The process was as follows :

I directed them to take in the morning and afternoon, in divided draughts, a quart of the following decoction. Rx. Rad. opt. bardan. sarsaparil. chinæ, glycyrrhiz. ana unc. ij. cum aq. decoct. spatio sem. horæ. adde ligni rasi. santal. rubri, sassafras, ana unc. ij. ebullient iterum parum, dein decoct. lib. viij. exhibe. In the evening, an hour after they had taken the decoction, they went into the bath as hot as they could well bear it ; the lower part of their body being naked, the rest, and especially the head, well guarded from the cold. The steam, which had no other passage, but where the opening was allowed for the body, and the heat of the bath, in a few minutes, threw them into a profuse sweat. They seldom remained in the bath above half an hour : when they came out, they were well rubbed near a large fire, dry linnen was put on, and they went into a warm bed, where they continued sweating two hours : during this time, they drank plentifully of three parts water, and one of milk warmed ; their linnen was again changed ; they sat up for two hours, and eat a light supper of biscuit, with broth or sack-whey. At dinner I allowed them any of the white-meats, with sack and water for drink.

When they had bathed in this manner five or six times, I ordered a strong decoction of guiacum instead of the former ; and a few grains of calomel, mix'd in some cases, with a few grains of turbeth mineral, to be taken an hour before they entered the bath ; which, tho' continued for a considerable time, seldom affected the glands of the mouth, being determined to the surface of the body. When the glands

are in the least affected, mercurials are to be omitted till that symptom disappear. I have sometimes observed, that the mercurial taken going to rest the night preceding the use of the bath, is less liable to affect the stomach, than when taken an hour before bathing. I ordered the bath three times in a week; in some cases repeated it five or six times successively every day, and gradually remitted the use of it.

The patients were seldom faint with sweating, a large supply of milk and water, thin gruel, and sometimes sack-whey, preventing this inconvenience. During the whole course they had a good appetite, and more than usual clearfulness of spirits. I have known some in desperate venereal disorders, reduced by former methods, acquire a good complexion and strength in this course; and though I have used it in many advanced and dangerous cases, I never met with one unhappy accident attending it, or with any instance where it failed. I have given mercurius præcipitatus per se in some cases, as being less liable to affect the salivary glands than any other preparation of mercury, and have directed a grain and half of it twenty nights following, in a common unguarded way, without observing that it affected the glands, or produced any remarkable evacuation: but lately the same quantity taken, seven nights successively, raised a violent salivation. This has given me a greater opinion of the efficacy of this preparation.

*The water of a dropsey evacuated at the navel; by  
Dr. FRANCIS PRINGLE, late president of the  
college of physicians at Edinburgh. Vol. III.  
art. 28.*

A Woman, betwixt forty and fifty years of age, who had laboured under a hydrops ascites some years, and taken a great many medicines, and some of the most powerful diuretics and hydragogue purgatives in vain, the bulk of her belly rather increasing, having one day taken a brisk purgative, the waters ouzed

ouzed out at her navel ; the ouzing was slow and gentle, gave her little uneasiness, and continued all winter, without her belly increasing, but her flesh and strength wasted.

Next year, in May, by riding in a coach, the orifices of the navel were so dilated, that the water gushed out in a stream, as if she had been tapped, the people about her computing that she had discharged between six and eight gallons of water. When I came, she was so faint, and her pulse so sunk, that I found it necessary to put a stop to the discharge by compresses and bandage, and then ordered her to be laid in bed with her head low and her feet raised. She passed the night indifferently, but recovered her pulse and spirits. Next morning a quart more of water ran out, when the wet dressings were changed, and that day she was seized with a fever attended with vomiting, hiccough and asthma. The fever continued in this way some days, but at length she recovered entirely, and continued in a perfect state of health till October, when she was seized suddenly with a colic, attended with a violent vomiting, and an obstinate constipation, which cut her off in a few days.

*Histories of successful indulgencies of bad habits in patients;* by ALEXANDER MONRO, P. A.  
Vol. V. art. 46.

THE three following cases are examples that bad habits are not immediately to be laid aside, but that sometimes patients are to be indulged in them, if we expect to make a cure.

1. A cook had received a wound in the septum and pinna of the right nostril, so that it hang'd down towards his lip. He was very faint by loss of blood, and was allowed some white-wine in his water-gruel or sack-whey for drink ; he however continued very low, and faint with sickness at his stomach, and head-ach for three days. His wife informed me that he was accustomed

accustomed to drink a large quantity of spirituous and other strong liquors every day, and that unless I indulged him, he would not recover; and accordingly she gave him a gill of brandy in some ale; he was much better next day, and, with this dose every day recovered daily, till he was quite well.

2. A man having broke the bones of his leg, after the fracture was reduced, was strictly kept to water and milk, water-gruel, and such like low diet. He did not sleep well in the night; next morning, his pulse was very quick, but low, and he complained of pain in his head, thirst, &c. The next night he had no rest; in the morning, he got out of bed, kicked away the box in which his leg had been put, his tendons were starting, and he scarce knew any person, his pulse intermitting, and very low. One present informed me that he had been accustomed for several years to drink largely of ale and brandy, and that unless I allowed him some he would die. I allowed him a little; that night he was much better, and next morning was free of fever, delirium &c. when it was acknowledged he had drank a gallon of ale and a gill of brandy, and that he had slept well and found. This daily allowance of ale and brandy he had all the time of his cure, which went afterwards on without the least accident.

3. A distiller fell into a vessel of boiling liquor, by which his hips, thighs, scrotum, penis and belly were scalded, the skin of all these parts turning quickly black and hard. I endeavoured to promote a suppuration by scarification, suppurating ointments and pultices, and, as his pulse was quick, ordered him to be blooded and kept on a low diet: next day he was much dispirited with great anxiety and a quick low pulse; the third day he was near as bad as the former patient, when his wife gave him some of the spirits he distilled; he soon became better, the suppuration coming on the teguments, which cured very well; his wife acknowledged that he had drank a pint of spirits every day.

Unexpected cures; by the same. Vol. V. art. 47.

A Middle-aged healthy man, having bruised the extremity of the penis, the part of the prepuce, where the frenum of the glans is, was raised into a large crystalline tumor. Fomentations, &c. being applied to it, and cathartics given, without its yielding, a small seton was put through it, with the view of allowing the watery liquors to ouze out, and of bringing on a suppuration. Instead of this it occasioned a sharp pain, and a violent inflammation, which made it necessary to take out the cord, and to apply an emollient pultice of milk and bread. Next day the tumor was greatly diminished; and the second day it disappeared without a return.

II. A young man had a great many pale-red excrencences, of a very thick unequal surface, with small necks, on the interior part of the prepuce; and when the prepuce was turned back, coxcomb excrencences were likewise seen on as much of the glans as he could uncover. The account which he gave of his disease was, that having a small wart on the edge of the prepuce, he cut it away with a razor; soon after which these excrencences began to appear. Mercurial ointments, astringents, escharotics, and several other medicines had been tried in vain, and he had undergone six weeks salivation without any benefit. I tied a silk thread very tight round the neck of one of them; he complained of sharp pain while the noose was drawing, which soon ceased, and in two days the tumor dropp'd off, leaving the surface of the part smooth and sound. A young surgeon next day put a ligature on one of them, but drew it not tight enough to mortify the tumor. The patient felt very sharp pains all that day, and by next morning a considerable inflammation was raised, for which he was bled plentifully, and emollient fomentations and pultices were applied to the part. After two days the inflammation abated, and the excrencences were all considerably

considerably diminished ; and as the inflammation went off, they shrivelled ; so that after eight days, during which the emollients were continued, it could not be known where the excrescences had been.

I am of opinion, that the inflammation made the cure in these two cases, and am confirmed in it by the success which I have seen of stimulating medicines in slow cold swellings.

III. A man who had been subject to the gout, was by accident burnt superficially in the face and hands. After the burns were all skinned, a spongy excrescence, the base of which was equal to a sixpence, rose out from the point of his nose, and another, as broad as a shilling, at its base, from the right cheek : they were both of a pale-red colour, and of a granulated surface, throwing out, from imperceptible pores, a thin liquor, which fell down in drops very fast. After different plaisters, ointments, astringents, &c. had been tried to no purpose, I covered the excrescence with fine lint wet with alcohol. The lint was wet three or four times a day with the spirit. In two days the ouzing of the liquor ceased, and the cotton adhering to the excrescences, they shrivelled, and at last became smooth, and plain with the other parts of the skin, leaving only a little redness for some time.

IV. A young man, of a weak constitution and thin habit, having fallen from a height, was bruised in a great many parts of his body, and particularly in the hypogastric region. He complained soon after of a sharp pain in the penis and region of the bladder. Those he advised with, suspecting these pains might proceed from a virulent gonorrhœa which he had three years before, injected some acrid medicines into the urethra, which increased the pain, and occasioned a considerable inflammation in the penis. When the inflammation was removed, he had great difficulty in making water, with sharp pain along the whole urethra when it did pass. He then took several doses of sweet mercury, drank the decoction of the woods, and continued some time the use of gummosus pills, with some

some grains of mercury in them. The symptoms becoming worse, I was consulted about him two months after his fall.

He complained of a torturing pain at the root of the penis, and in the glans, when he attempted to make urine, which let fall a branny sediment. I advised mild mucaginous medicines, and an emollient healing injection, with fermentations. These made him easier; but he was seized with feverish irregular paroxysms, which wasted him so fast, that there was a necessity to stop them; with a view to which, and his original disease, the following electuary was ordered.

R. Pulv. patrum dr. duas. Gum. Arabic. dr. unam cum sem. Sal. Nitr. dr. unam. pulv. milleped unc. sem. Sal. Jov. Londin. scrup. unum, Syrup. diacod. q. s. Of this he took the bulk of a nutmeg twice a day. The aguish paroxysms, and the other symptoms, went off gradually, and in a few weeks he was perfectly recovered.

V. A. Strachan had a fit of the colic, which went off in one day, after which a painful tumor was observed towards the left side of the epigastric region, which soon extended over the whole region. He took a purgative medicine, after which he had a constant diarrhoea. A month after he was received into the infirmary, when a fluctuation of liquor was felt lodged deep, and the left part of the tumor pointed outwards: he complained of a sharp pain in the left shoulder, and the skin of his face had the leadish colour almost peculiar to those whose livers are suppurated. His pulse was quick and low, he had no desire for food, and on taking it, the pain was increased; he had perpetual thirst, slept ill in the night, and sweated much in the morning, with a diarrhoea still upon him. To promote the suppuration, a pultice of oat-meal, basilicon, and raw onions, was applied thrice a day. Some drops of laudanum were given at night, and mild diet ordered. The suppuration seemed to advance outward four days, the opiate being gradually increased

increased to check the diarrhoea, which frequently returned, but without any pus in his stools. On the fifth day the tumor was diminished, softer, and less painful, but he was faint, for which he had sack-whey allowed him to drink sometimes. His pultice and laudanum were continued, the tumor gradually diminished, and his hectic symptoms went off without any observable evacuation of pus; so that next month he was dismissed healthy and strong.

VI. A child eight months old, after several violent epileptic fits, was blooded at the jugular vein to five ounces, and soon after being put into a cradle, lost a considerable quantity of blood more, was faint, weak, and very pale. She continued thus several days, but has never since had any returns of the epilepsy, though she has undergone all the common eruptive diseases.

VII. A woman, in the decline of life, and of a broken constitution, had been several weeks in a rheumatic fever, out of which she narrowly escaped, after repeated bleeding, and other medicines. Two years after she was seized in the morning with the same symptoms which had appeared in the beginning of the former fever, to wit, anxiety, thirst, vomiting, pains of the whole body, and particularly of the head, with a high quick pulse. In the evening fourteen ounces of blood were taken away, which gave her no relief. In the night-time the blood burst out again, and besides wetting the bed-cloaths, was lying in clots at her side, before it was taken notice of. A fresh bandage being applied, she fell asleep, and awaked next morning free of all complaints.

VIII. A sharp pain struck into my right eye, which gradually seized all that side of the face, contracted the eye-lids, made the tears rush out, and affected all the teeth of the upper-jaw. It began between ten and eleven o'clock in the morning, increased till four in the afternoon, decreased till six, and then went off without any critical evacuation. In the paroxysm my pulse was not disordered, and in the intervals I was

as well as ever. I suffered this pain ten days, without making use of any medicine ; but it increasing, I let ten ounces of blood, and took a vomit a little before I expected the fit to begin. The vomit operated severely, but did not prevent the return of the pain, which continued till the medicine began to go downwards, when I was relieved ; and having purged twenty times before night, I had no more returns of the disease. Since that time I have cured several of this disease, by giving them a vomit ; and soon after its operation was over, if there was no appearance of the emetic going downwards, a brisk purge.

VIII. A man had a quartan ague and the French-pox ; the ague was in vain attempted to be cured by the common remedies ; and in the mean time the pox advanced, the nocturnal pains increased, and the foul ulcers in his throat spread. His physician gave him five grains of sweet mercury at night immediately after the fit of the ague was over ; repeated this dose next morning and evening, and the morning of the following day. After he had taken these four doses of mercury, he had a fit more severe than any before, the fever being high, with delirium. After the fit was over, the mercury was repeated till a salivation arose. He never had any more appearance of the ague, and the venereal symptoms disappeared.

*Spasms in the œsophagus ; by Mr. JAMES AIRD,  
chirurgeon-apothecary in Cumnock. Vol. I.  
art. 28.*

**R**obert Aird, aged eighteen, a strong well-made youth, troubled frequently with an itchy scurf on his skin, complained of colic pains in the beginning of the year 1724, which grew violent early in the spring. They were attended with the following symptoms. He was costive, and his spittle tasted salt or bitter for two or three days before the attack : the skin became free of the itch, and smooth on the approach of the fit : he grew very thirsty, inclined to yawn, but could not

not freely : a pain and swelling began in the umbilical region, reaching upward to the stomach and both hypochondres. He had a violent head-ach, reached to vomit, and shivered all over his body. He threw up at sometimes biliary matter, at others a saltish rheum : at last a numbness seized sometimes his legs, sometimes his arms, and sometimes both, during the paroxysm. His urine was clear and copious during the fit, but turbid and red after it. The first appearance of the declension of the paroxysm, was a sweat trickling down his face, with an ability to yawn freely.

A second fit attacked him in the beginning of March, about four in the afternoon ; at twelve he was blooded plentifully, which gave present ease ; next day he was vomited, and with an intermission purged once and again, which, with a regular diet, probably kept him free from any attack for some weeks.

In April he was seized with a dangerous fever, with starting of the tendons, &c. which lasted fifteen days, but went off with a plentiful sweat, and he continued well till

Thursday the twenty-first of May, when, after being three days costive, he was seized with another fit of his colic pains. All the former symptoms raged most violently, particularly the vomiting, with shivering to a great degree. It lasted from three in the afternoon till near midnight, and then went off. On the paroxysm's declining, he could not swallow any thing. He was very dry, and had a faint inclination to eat : he complained of a pain at the pit of his stomach, and on the left side of his throat.

The twenty-second, in the afternoon, he was feeble and thirsty, but could not get over the least drop of liquor, tho' he frequently attempted it, but with so much pain and reaching to vomit, that he was forced to give it over.

The twenty-third; he continued in the same way. Being persuaded to swallow some marmalad, he twice endeavoured to do it ; but thro' the violence of pain, horrible

horrible nausea, reaching and convulsion of the parts; gave up any further trials: by the violent contractions of the abdominal muscles, he forced the gut into the scrotum. This was immediately reduced, and he was laid to-bed in a very hopeless way.

The twenty-fourth, he continued in the same way. At last, when he was brought very low, the following cataplasm was applied to his jaws, and the fore-part of his neck and stomach. Rx. Theriacæ venetæ, unc. ij. pulv. fol. menthæ drach. iij. pulv. sem. absinthii drach. j f. Ol. macis per express. drach. ij f. spt. vini camphorat. unc. ij. vini clareti, q. f. ut f. cataplasma molle. In an hour he could swallow a little drink, and before ten at night could take down both victuals and drink. He was nourished with whey and chicken-broth, and passed the night easily, but his spittle continued very bitter.

The twenty-fifth, he complained of little, except the taste of his spittle and weakness; he had a plentiful stool, having had no passage by stool or urine from the beginning of the paroxysm.

The twenty-sixth, in the morning, he took a vomit of emetic wine, which brought up a large quantity of curdled biliary matter, by which he was greatly relieved: but observing him pained by the spasm in the left-side of his throat, when he reached, I did not press him to continue vomiting, but put him to-bed. He had some stools this and next day.

The twenty-eighth, he began to use the following purging tincture. Rx. Pulv. Rhei elect. unc. sem. fol. menthæ pug. j. sal. Absinth. drach. sem. spec. hieræ picræ drach. j. aq. cinnam. f. v. lib. sem. agitetur phiala saepius per triduum, & f. colatura turbida; drinking whey, water-gruel, or chicken-broth, an hour after it. By this he evacuated great quantities of biliary matter; he took it every second day, till he had consumed double the quantity prescribed; for he had it renewed by pouring canary on the residuum, which purged him in the same manner. The more he purged, the more he found himself relieved; and the

saltish and bitterish taste of his mouth gradually went off. After some days, he began (as he used to do frequently in health) to sweat in the night.

After his purging tincture was ended, he used some corroborating medicines, and was restored to perfect health, and has been free from any complaint of this kind these eight years.

As to the hernia, he wore a truss for some time; but as he had never been troubled with it before that fit, so he has been free from it ever since. This will appear less strange from the following case.

A gentlewoman, by lifting a great weight from a table, had in a moment a hernia inguinalis, which gave her intolerable pain till it was reduced. She was ordered to lie constantly a-bed for ten or twelve days, with a woollen cloth six or eight fold, wrung warm out of a strong decoction of oak-bark and alum, with strong red-wine, press'd close on the part; all the time she was free of pain, and then rose in perfect health, and has since born children without a relapse, or any uneasiness from the rupture.

*An apoplexy occasioned by a fall from a horse; by Dr. CHARLES AYTON-DOUGLAS, physician in Fife. Vol. V. art. 52.*

**O**N the nineteenth of July 1737, Andrew Reid, a robust boy, about thirteen years of age, when at a full gallop, fell from his horse. The place where he fell being three or four miles from his father's house, it was three hours before his friends found him, lying apoplectic in the place where he fell. As soon as they got him home, he was bled and put to bed. Nothing more was done for him till the twenty-second at seven in the evening, when I was called, and I found him a-bed in so profound a sleep that we could not so much as make him to look up, altho' we pulled his hair, and pinched his skin in several places, and he had remained so ever since his fall. His pulse was somewhat low, and not frequent,

and

and he breathed tolerably well ; he had not vomited ; there was no inflammation in his eyes, and I could discover no external bruise or wound.

I ordered him immediately to be taken out of bed, and kept in a chair, that a revulsion might be made from the head ; and that the vessels there being more emptied, the extravasated blood might the more readily be absorbed by the veins. I bleded him until his pulse sunk much, caused his legs to be put in warm water, and cupped, and scarified the nucha. When this was done, his head was somewhat relieved, so that he sometimes looked up, and answered us once or twice, when we called loud to him, and pulled his hair. I ordered his head to be shaved, that I might judge with more certainty next day if there was any external wound or bruise, and to give him new-made whey for his drink, and for food water-gruel made of oatmeal or wheat-bread, which he took with appetite enough.

Next forenoon he seemed somewhat easier, but still very lethargic, with his pulse and breathing as the day before : I could discover no external wound, or bruise on his head : I bleded him again, to the quantity of eight ounces, which sunk his pulse for some time, and ordered the directions formerly given as to bathing, diet, and keeping him out of bed.

On the twenty-fourth, he seemed much easier than he was on the twenty-second, so that frequently he answered when spoke to, but was still lethargic : I bleded him at the jugular vein until his pulse sunk considerably, and prescribed the following purgative to be taken next morning, being the twenty-fifth, and to be repeated on the twenty-seventh. Rx Rad. jalap. pulv. scrup j. aquil. alb. gr. v. misce pro dos. drinking plentifully of luke-warm whey during its operation. The letting blood at the jugular vein made a sensible change on him for the better before I departed from him ; and after he had taken the two purgatives, which operated very well, he was no more lethargic ; but his judgment continued impaired,

and he had lost his memory so much that he could not read one word.

Two or three days after the last purgative, it was repeated, and a seton put in his neck. The purgative operated very well, but his judgment and memory continued as much impaired as formerly, and he would not allow the seton to be put in; upon which I took leave of him.

I did not hear from him in two or three weeks; in which time he recovered his strength, and was able to walk or ride, but was still very stupid, and his memory as bad as ever, insomuch, that if he happened to walk an hundred paces from his father's house, he sometimes could not find the way to it without a guide; in this case I found him about three weeks after he had taken the last purgative, when he allowed the seton to be put in, and within eight days recovered his memory and judgment, which have continued to this day, being sixteen months since his fall, as distinct as ever; and he has perfect health. The seton was kept in six weeks longer, and when taken out, the purgatives were repeated.

*Loss of appetite, and an atrophy from the stomach displaced;* by Dr. ROBERT LOWIS, fellow of the college of physicians at Edinburgh. Vol. I. art. 30.

A Gentleman, about sixty-three years of age, of a gross habit, healthy constitution, and regular course of living, had from his youth been subject to an epiplocele: about the end of the year 1722, his appetite began to fail, and his body to waste: he had not much thirst, and was generally costive; his urine for the most part reddish, in a small quantity, and with a red sediment; he never complained of any pain but what was occasioned by the piles, which went off in a week or two without bleeding. Purgative and stomachic bitters, with such other medicines as were proper to mitigate the most pressing symptoms,

were

were the only ones he made use of, fearing that vomits might increase the hernia ; but his disease still going on, about the month of July he took a vomit of emetic tartar, and after that several others, which brought up, with much difficulty, a quantity of tough, heavy, thick phlegm, by which he had some short relief. About the latter end of August, he was sensible of a weight upon his stomach, the hernia increased, and he was troubled with frequent belchings. He had but little sleep for some time past ; his pulse was full, strong, slow, and hard ; he used moderate exercise in the country, a regular diet, and ass's-milk : a looseness came on, not excessive, nor accompanied with gripes. At length his stools were very offensive, and had a mixture of purulent matter in them. His breathing grew difficult, his strength gradually failed, and he died on the twenty-fifth of October : upon the twenty-seventh his body was opened.

Upon cutting the teguments of the lower belly, there appeared little fat, and the fleshy fibres of the muscles were almost consumed. The abdomen being fully laid open, there appeared very little of the cawl, and that reached scarce so far down as the navel, except upon the left side, where more than the half of it had fallen down to the scrotum, and was attached to the lower part of the left testicle, the annulus on that side being dilated, so as to admit two or three fingers. By this falling down of the cawl, the stomach, which was very much inflated, and extremely thin and smooth, had been pulled out of its natural situation, so that the pylorus tended obliquely downwards, almost as far as the right side of the navel, and the gullet entered the stomach at an acute angle. The liver was large, weighing about six pounds, and reached under the left hypochondre, taking up part of the space which the stomach should have naturally possessed. Upon its surface, and through its whole substance, were white steatomatous swellings, as also several ulcers, especially upon the concave side. The gall-bladder contained a blackish bile, and the biliary

duct was so large, as to admit two fingers where it entered the duodenum. The pancreas was schirrhous, but the mesenteric glands were no ways indurated : these, and every thing else in the lower belly, appeared to be sound. In the thorax the lungs were of a blackish colour, and at the first division of the wind-pipe, in the left lobe of the lungs, there was a round hard body, about the bigness of a filbert, outwardly as black as ink, but when the membranous cover was removed, brownish, of a stony, brittle substance, like to something he spit up in his sickness. The heart was extremely flaccid.

*A tympany ; by ALEXANDER MONRO, professor of anatomy in the university of Edinburgh, and F.R.S. Vol. I. art. 31.*

**M**Argaret Dog, aged twenty-two years, was seized with a tertian ague in January 1729. Among a great variety of uncommon medicines, she drank large quantities of brandy and powder'd pepper, in warm ale, which changed the intermitting fever into a violent continued one, in which she was delirious several days : as this went off the ague returned, but with two, three, four, and sometimes five paroxysms in a day, which she attempted to put away with specifics. The disease however continued till August, when some doses of the bark were given her ; after which she was attacked with sharp pains in her loins and belly, which begun commonly about the right os ilium, and, rising upwards, crossed over by the stomach to the left side, attended with gripes, borborygmi, and swelling of the whole belly : for some weeks one of her legs trembled, became hot, and sweated at the same hour each day, while nothing like an ague was felt through the rest of her body. The pains continuing, her belly became still more distended, and was sometimes stretched to a great bigness, and then gradually subsided without evacuations

evacuations of any kind, but always remained swelled. In winter she was for some time almost free of her uneasy symptoms, but in the spring they returned. She got into the infirmary on the twenty-fourth of March 1730.

Her symptoms at this time were a constant swelling of the belly, which sometimes increased so much, that the skin seemed to be in hazard of being torn, and her breathing was much straitened. The swelling gradually sunk without any evacuation. Its returns and degree were uncertain; and when the belly was least swelled, several unequal protuberant balls were felt, especially at the sides of the abdomen. Her stomach was good, she had no thirst, and her urine was in due proportion: she was very costive; the return of her menses was irregular for some preceding months.

At first she took several purges, which operated sufficiently, but brought little or no wind along with her fæces, and altered her belly very little. She next took some doses of calomel, which produced very little change; and, during two months, she was constantly taking large doses of antihysteric medicines, sometimes mixed with purgatives. The antihysteric plaster was kept to her whole belly, and once or twice a semicupum was used, without any appearance of a cure, or certainty of the remissions being owing to any particular medicine: for tho' the swellings increased not for nine days following, yet the hardness of her belly did not entirely remove, her costiveness remained, she had no passage of wind any way; and the medicine which at one time seemed to relieve her, was of no effect at another. From the time of her admission she had her menses only twice, viz. May the seventeenth, and June the seventeenth.

During this period, several times, upon the swelling's falling, she complained of a head-ach once, once of pains through all her body, once of a giddiness, twice had a nausea and vomiting, and in the last threw up green bile; and once her stomach swelled

led greatly, when the rest of the abdomen subsided. During the flowing of the menses, she did not swell, but became very big upon their stopping. Bleeding and vomiting, which were used for accidental symptoms, made not the disease sensibly better or worse. She never passed wind any way, but a little upwards, before the first monthly evacuation.

Sometime before the last eruption of the menses, the purgatives were given sparingly, and the doses of the antihysterics of the strongest kind, such as affa-fœtida, oil of hartshorn, &c. mixed with soap, were enlarged, and given more frequently with the hotter antiscorbutics infused in strong ale with steel. The patient was ordered to use frequent and strong frictions to all the trunk of her body and extremities, and to exercise moderately. Immediately before the menstrua began to flow, clysters of the same kind of medicines were injected. The courses were in sufficient quantity; but as soon as they ceased, the belly increased in its circumference four inches and a half, but soon subsided; and then she complained of pains, which a gentle sweat carried off. Borborigmi were for the first time observed, on the same day, June the twenty-fifth; and having taken some tinctura sacra at night, she passed some blood next day by stool. This again was the first appearance made by the hæmorrhoids, which she had been formerly subject to.

The two following days she had excessive explosions of wind upwards and downwards; her belly became less and softer; the saponaceous, antihysteric, and antiscorbutic medicines (with a dose of syrup of buckthorn at proper intervals) were continued, and the quantity of steel increased; her flatulent discharge went successfully on; and though for some time the swellings returned, she was strong enough to do the work of a servant of the infirmary, and continuing in that station, she still used her medicines, till there had been no relapse for several months; since which she has been in good health, notwithstanding her having

gone into service, where she work'd hard, fed indifferently, and common walked bare-footed.

*An inflammation of the stomach, with hydrophobia, and other uncommon symptoms, by Dr. JOHN INNES, fellow of the college of physicians, and professor of medicine in the university of Edinburgh. Vol. I. art 29.*

A Young gentleman, of a florid complexion, all his life healthy and vigorous, on excessive walking in dry hot weather, was suddenly seized with a sharp pain at the upper orifice of his stomach, soon after attended with difficult breathing; both which almost as suddenly disappeared on plentiful bleeding. In the winter he had some faint returns of the same; but by gentle evacuations, keeping at home, and moderate diet, he easily got the better of them.

He lived very temperate, and in perfect health, till the end of March, when he could only observe his appetite less, and digestion slower than usual.

April the second 1732, he went to bed in perfect health, was awaked next morning with a pain much like the former, tho' not so sharp, but that he could put up with it; and at some intervals sleep a little till ten next morning, when, all of a sudden, it became so violent, as to force him instantly to call out for his old cure, a plentiful bleeding; on which, for some minutes, he thought himself entirely relieved; but soon after complained of a strange anxiety, difficult breathing, coldness of his extremities, and convulsions of the diaphragm.

I saw him before eleven, when I found his pulse oppressed, irregular, intermitting, his extremities chilled, his breathing almost suffocated, fetching heavy sighs, and often looking ghastly, spouting saliva frequently, and roaring out from a sharp burning pain gnawing his stomach; now his pulse at the

arm was scarcely to be felt, but at the temples was frequent and irregular.

He was blooded plentifully, on which his pulse became fuller, equaller, and a new heat was diffused over all his body; the pain remitted, and his breathing became free. Twenty minutes after his extremities became cold, his pulse feeble and irregular, his breathing oppressed, and his pain quicker than ever. He was immediately blooded, and seemed for five minutes somewhat relieved; then, all of a sudden his extremities became cold and rigid, as of a dead body; his pulse at no rate to be felt; immediately he cried out, raved in the most extraordinary manner, often starting up, and tearing every thing about him, spouting perpetually great quantities of water, ready every moment to be choaked. The tone of his voice often changed; he had convulsions frequent in his face; at length, as if wearied out, he fell calm, tho' still insensible; he was plentifully blooded, on which he returned to all his senses (except that of seeing distinctly) and seemingly to good health.

He had some intervals during this shock, and called instantly for drink; but the moment he saw it, fell into horrors, and, as it approached him, started, looked frightened, had frequent convulsions, especially about his mouth; he would then put it away, again call for it, and repeated the same scene.

After this last bleeding, finding himself more relieved than ever before, he greedily took in a mouthful of warm milk and water, which he instantly spouted out again, and after it a large quantity of saliva, still complaining of thirst, tho' he could not hear of any kind of drink without horror. At five in the afternoon all the symptoms returned, but not in so violent a manner as the last time. On bleeding he became easier, and passed the night free of pain and hard breathing, tho' without sleep. Towards the morning, he often attempted to get down some drink, tho' with the utmost terror and pain. An emollient fomentation was applied warm to his belly and

and breast, which at first he fancied relieved him, but afterwards, when his pulse became fuller, complained that it made him faint.

From this last bleeding his pulse was soft, full, and slow; he had an equable heat over his body, and a breathing sweat till next morning at nine, when his extremities gradually cooled, his pulse turned feeble, his breathing quick and laborious, and his pain sharp: he was again blooded, but before five ounces were taken away he fainted; all the symptoms disappeared.

Next morning all his former ailments returned; he was blooded, and instantly relieved, and continued easy till eleven at night, when all the former symptoms recurred: he was blooded, but before three ounces were taken fainted; the disorder however abated, but returned with double force at five next morning, when he bled freer and without fainting.

During this time he got down now and then a spoonful of warm emulsion, but not without great pain.

He laid from the beginning on his back, and the least attempt to move himself from that posture awakened his pain, which hindered the use of clysters.

He passed that day much sunk, weak, and dispirited, often fainting till two next morning, when the old ails returning demanded immediate bleeding, which he bore better than the two last times; after this his pulse was softer, fuller, and slower by much than at any time before, and his pain easier. All that day he drank heartily his emulsion, and a little chicken-broth; at midnight he turned very ill, and bore a plentiful bleeding without fainting; on which his pain quite vanished, and next morning his pulse was very near to the natural, and he could move himself without pain.

A fomentation was applied, a clyster injected, which was retained, and another more stimulating one, which operated very well,

He had a retention of urine from an inability to expel it, but on the second injection and fomenting the perinæum, it went off.

He could now take down any thing without pain, his pulse was come to the natural standard, only he was very weak. At eleven that night he had a violent reaching to vomit, which lasted half an hour; he slept well till five next morning, when he vomited excessively; but on applying warm cloths to the pit of his stomach, the vomiting was staid.

He now began to loath his milk and water, chicken-broth, &c. and took in place of them sack-whey, a very little solid food, veal-gellies, &c. and by this diet, in a few days, recovered his health and strength. He had, during this disease, one hundred and sixteen ounces of blood taken from him.

*A phthisis cured after coughing a bone, by Mr. THOMAS ARNOT, surgeon in Cowpar. Vol. V. art. 57.*

David Hedderwick, a strong healthy man, thirty years of age, began on the twenty-eighth of April 1733, to complain of difficulty of breathing, cough, want of appetite, and a straitness or lump about the upper part of the sternum, and was at the same time feverish, which symptoms were increased by his wading in a river. He was bled and vomited; the sensation of the lump went away, but the other symptoms remained, and he had stitches in his sides, his flesh and strength decaying. On the twenty-third of May, his symptoms were, as just now related, with a whizzing sometimes in breathing, and a hectic pulse; his breath often had a very bad smell. I let twenty ounces of blood, which was very fizzy, next day gave him a vomit, and made him continue the use of balsamics and pectorals, which made his cough and breathing easier; and his breath less fetid; but the fever, thirst, &c. still continued.

The

The twenty-eighth all his complaints increased, and I blooded him twice more, which made his stitches milder, otherwise his symptoms continued, and he had great pain at the pit of his stomach when he coughed. The pectorals were continued, and the vomit repeated with the addition of some vinegar of squills; but tho' his breath was less fetid, he grew worse, delirious, and was confined to his bed.

June the second, he sweated plentifully, without relief.

The third, the cough was very violent from six to nine o'clock, when in a severe fit he threw up a spongy bone about the size of a hazel-nut; it was covered with bloody stuff, and very fetid. Immediately after this bone, he brought up a spoonful of fetid pus, mixed with blood. His symptoms immediately became all milder, only his stomach was weak, and he nauseated food some days, for which I gave him an emetic, which purged as well as vomited him; after this he recovered daily, and is perfect well.

*A history of the rabies canina; by Dr. ANDREW PLUMMER, professor of medicine in the university of Edinburgh. Vol. V. art. 51.*

**A** Young gentleman, seventeen years of age; about the beginning of December 1728, was bit by a dog in the middle finger of the right hand, about the middle of the nail. The wound gave him very little trouble at first, and was soon cured:

In the beginning of January 1729, he first complained of pain in that finger, reaching along the back of the hand to the elbow, accompanied with a numbness of the finger. In the night, betwixt the sixth and seventh of January, he was very hot and restless, the pain still increasing. He fomented his hand for some time on the following evening, and having taken some slight flap for supper, went to bed; but the sharpness of the pain made him toss all night, and put him in a great heat and sweat. Being very thirsty,

thirsty, he rose in the middle of the night to get some water or beer to quench his thirst. When he got the liquor, he could not drink so much as he inclined, because of a difficulty of swallowing. In the morning he attempted again to drink, but the liquor had scarce reached his throat, when he was suddenly convulsed, let fall the cup, and said he was almost choaked. Some hours after, when he was getting out of bed, he staggered and complained of a giddiness of his head, and sickness at his stomach ; he was hot and feverish, and his hand much pained. After letting ten ounces of blood, the pain of his finger abated, and he found himself easier. He made some attempts to swallow a purgative ptisan, but could not. In the evening he was persuaded to try if he could get down a little soft bread soaked in sack-whey ; he took it into his mouth, rolled it about for some time, but when he was about to swallow it, spit it out suddenly, and with a convulsive motion ; however, that night he slept pretty calmly, and had a moderate sweat. Next morning he appeared somewhat disordered, spoke incoherently, fetched deep sighs, complained he could not breath, and that something interrupted the motion of his heart. About eleven in the forenoon he was very uneasy, tossing his head, and shifting postures ; his mouth was frequently distorted, and other muscles of his face convulsed ; his breathing quick, his pulse frequent, but feeble. He was asked to take a little of a cordial ; he said he durst not attempt to swallow, for it would choak him ; but being pressed to try it, he put the glass to his mouth, but as quickly threw it out again with a kind of horror and shivering. He was much disordered, like one in an agony, tossing his head and his arms, his face red and bloated, his eyes wild and staring, constantly squirting out his spittle ; sometimes starting up suddenly from his seat, then throwing himself down upon the bed ; yet he answered questions pretty composedly. At the time he was bitten, he had a gonorrhœa, for which he had been taking medicines ;

medicines ; his method was to take a dose of mercurius dulcis at night, and early next morning some purgative. Soon after this, he found himself much worse, and believed he was a dying, but, on a sudden, leaped out of bed, and fell upon a young man in a most outragious manner : he was carried back to his chamber quite furious ; two men were scarce able to keep him in his bed ; and the vein which had been opened the day before, had burst open by the violence of his struggling, and was bleeding excessively. He was roaring and foaming, gnashing his teeth, endeavouring to bite and tear every thing he could come at with his hands and teeth ; he bounced with such force, as to heave up a man who was lying across him, and made the bed shake ; his face, breast, hands, and linnen, were all covered with blood and sweat. After he had almost exhausted his strength, and was panting for breath, I spoke to him ; he knew me, and answered pretty calmly. I perswaded him to have his arm bound up, and wiped the sweat and blood off his face. As near as I could guess, he had lost about twenty ounces of blood in this fit, which had lasted near an hour. In this calm interval, I asked him if he would drink ; he said he desired nothing more, for he was exceeding thirsty : I took up a jug, that was at hand, with milk and water, and put it to his mouth ; he snapt at it greedily, and fixed his teeth in it. He took in a mouthful of the liquor, but squirted it out again : he was instantly seized with a violent convulsion, which was followed by a vomiting of a bilious phlegm, with some thick black matter like clotted blood. Then the furious paroxysm returned. He raved and struggled, and attempted to bite. In the evening he foamed at the mouth, made a hideous screaming noise, rolling about his tongue, and had a convulsive motion like the hiccup, but stronger, and his face was frequently distorted with spasms. Even at this time he knew me, tho' he raved incessantly. He continued in this condition till

six at night, when his strength being quite exhausted, he lay motionless for half an hour, and then expired:

*Fatty substances voided by stool after a violent strain of the back; by Mr. THOMAS ARNOT, surgeon in Cowpar.* Vol. V. art. 66.

**D**AVID Thompson, forty years of age, attempting to take up a heavy vessel, felt his back-bone immediately, above the os sacrum, make a great crack; with most violent pain in that part, and at the superior vertebra of the loins; he immediately lost all power of his legs, and fell to the ground, without being able to move; and it was with the utmost difficulty that he could allow himself to be carried to bed. The pain continuing long very severe, he fancied that the bone was dislocated inwards; and to reduce it, made one of his neighbours pull his belly backwards, while another getting on his shoulders pressed downwards and forwards, by which he thought his loins were straighter than formerly, and he had less pain.

Some days after this, a bone-setter made one man pull at his shoulders, and another at his legs, by which he was put to exquisite torture, and all his complaints were increased.

Three months after he began to recover his legs somewhat, so as to crawl out of doors, and then observed among his excrements, a whitish substance about the bulk of a large walnut. It is like tallow, composed of small globules, and melts with heat. During several days after, pieces of the same sort of substance, of the size of kidney-beans, came away among his fæces. He thought all these lesser pieces equal to the large piece he passed first.

The man continues still unable to follow his business, and cannot turn the trunk of his body to any side without great pain.

*An account of bloody urine from a worm in the bladder; by Dr. EDWARD BARRY, physician at Dublin, and F.R.S. Vol. V. art. 72.*

MR. Thomas Hutchins, aged fifty years, about five years ago, while he enjoyed perfect health, and without any previous complaint, or cause which he could assign, first observed his urine coloured with blood. This discharge since that time has continued in his urine, without any intermission, except when drinking very freely, he has sometimes observed it clear or but lightly tinctured, after often making urine in large quantities, but it soon returned to its usual colour; neither exercise, medicines, nor diet had increased or diminished the quantity of blood discharged every day.

When I examined his urine, it was obscurely and deeply coloured, the sediment was more intensely red, and a great part of it, when the urine was poured off, was lightly coagulated. The quantity of blood which subsided in twenty-four hours, without considering what remained mixed with the urine, was at least equal to two ounces. He often observed what he first discharged was more highly tinctured than what followed. He never voided either stone or gravel, never complained of any pain in his kidneys, ureters, bladder, or urethra. His constitution was naturally strong, which made him less sensible for some time of any inconveniences from this evacuation; and having used several medicines in vain, he acquiesced under it. About three years ago he had a fever, and Mr. Maxwell, a surgeon, who attended him, told me he could perceive no great difference in his urine during the fever. From that time he became more sensible of a gradual decay of his strength. When I visited him, he had a swelling in his legs, a fulness and tension in his abdomen, like a beginning ascites, his eyes and skin tinctured with a yellow colour, a lassitude and difficulty of breathing on motion, a total

loss of appetite, a constant thirst, with a quick pulse, which increased every evening.

I prescribed the following regimen, with a view of moderating the progress of the symptoms.

After an emetic, he took the next night ten grains of calomel, and the succeeding morning two ounces of this infusion.

**Rx.** Hieræ picræ dr. sex, Rad. Rhei dr. tres, Jalap. dr. unam & sem. Cochin. Indic. Sal. Absinth. ana dr. unam. Infund. frigide in vin. alb. Lusitanici fortioris unciis sedecim. Colaturæ adde Tinct. Myrrhæ unc. duas.

Thus prepared, he continued to take three of the following pills :

**Rx.** Gum. Ammon. dr. duas, sapon. Venet. Chalyb. cum Sulph. ppt. ana dr. unam, Rhei elect. pulv. dr. unam & sem. Sal. Tachen. dr. sem. Ol. Juniper. gut. sex, Terebinth. purissim. q. s. M. f. pilul. duodecim ex sing. drachm. cap. 3. hor. septima matut. & sexta p. m. superbibendo unc. tres seq. decoct.

**Rx.** Rad. Curcum. Rub. Tinctor. ana dr. sex, Cort. Peruv. unc. unam. Cum aqua decoct. sub finem adde Baccar. Junip. unc. sem. Colaturæ lib. duas exhibe.

These he took morning and evening, drinking three half pints of Pyrmont waters after them in the morning, and a half pint in the evening, at a proper distance. Two hours before dinner, he took thirty drops of Mynsicht's elixir of vitriol in a glass of old hock.

In a week's time I repeated the calomel and the purging infusion ; about four next morning he complained of a severe griping, purged largely, lay down and slept till seven, when he made a glass full of urine of a natural colour, and before ten two glasses more. In the bottom of the last glass I found a worm above an inch in length, of the thickness of the smallest eel, and not unlike it in shape, ending in a sharp-pointed tail. I washed it gently with water, which it lightly tinctured, first with a bloody mucus which adhered to it. We could discover its mouth, eyes, and circular

cular fibres : it was firm, and of a red colour, and in the evening of a more pale colour. His urine continued all that day and the next free from blood, in which time he made seven large glasses. The succeeding morning his urine was lightly coloured, and in the evening it was as fully loaded as usual. Next day it disappeared, and returned again three days afterwards. This intermission was gradually greater, and the return more moderate, and the bloody tincture in three weeks ceased. When the urine was free from blood, a sediment, like the white of eggs, subsided, and continued for some time, though in a less quantity, after the evacuation of blood disappeared. Afterwards, by continuing the use of a chalybeate wine, with the gum-pills, taking rhubarb once a week, and observing an exact regimen of diet, all the other symptoms were removed. It is now near a year since he parted with his troublesome companion, and he enjoys at this time a perfect healthy habit of body.

As he had no pain, it will be difficult to fix the seat of this worm : when the discharge of blood is from the kidneys or ureters, the urine, tho' red, will be generally transparent ; this was always obscure, and the sediment immediately subsided, which falls more slowly in the former case : we must therefore fix it in the bladder ; and as the first part of the urine was more obscure than what came off at the latter end, it was probably near its neck. But another greater difficulty attends this situation : it could not lie loose in the bladder, with its mouth fixed constantly to one part, nor does it seem to have eroded any vessels, or produced any wound, which must have been attended with pus ; it must therefore have been originally lodged in one of the last ramifications of an artery, which exhales into the bladder, which gradually enlarging with its size, occasioned a constant ouzing of blood, in the same manner as the menstrual discharge is produced, where, by a dilatation from plenitude, the same vessels which commonly exhale a thin fluid, give admittance to blood. And that such

was his case, appears from the procedure of the symptoms. The immediate disappearance of blood after the discharge of the worm, must have been owing to some coagulated blood lodged in the extreme orifice; for neither could a wound so immediately heal, nor a dilated vessel recover its tone: when this putrified and loosened, the discharge returned. This frequently happened: at length a gelatinous humor, like the white of an egg, only subsided in his urine, which was the serum of the blood, which the vessel still admitted, till its contraction and tone being gradually restored, all appearances of that nature ceased.

Bloody urine, in most cases, is owing to stones or gravel wounding the vessels, sometimes to the urine being loaded with acrid salts, which may act like a caustic, abrade the mucus of the urinary passages, and erode the vessels; or, in general, to whatever presses on their vessels, or determines the blood there with a force greater than their resistance. But as such causes never act equally at all times, a discharge from hence of bloody urine, appears in paroxysms, which are more intense or mild, according to the circumstances then producing them, and are generally attended with pain: but when the discharge of the blood with the urine is constant, equal, and unattended with pain, without any symptoms of calculous concretions, we may, I think, safely, for the future, assign such an evacuation to a worm lodged in the extremity of one of the arteries.

*A dropsey, and large vesicæ in the ovary; by  
Mr. JOHN PAISLEY, surgeon in Glasgow.  
Vol. V. art. 73.*

**A** Widow-gentlewoman, who, when she was bearing children, had been troubled with costiveness and piles, and had been accustomed to family purgatives, which she was obliged afterwards to continue, and who, in labour of a child eighteen years ago, had got an exomphalos, had many years observed

served a more than ordinary bigness in her belly. In July 1734, she complained of some pains in her belly, attended with feverish symptoms, which were soon removed. In March 1735, she complained of her belly having increased considerably for some time past, with a weight and tension in the lower part, which hindered her walking easily. On pressing this part I found it much swelled and hard, and could easily distinguish a large round body in the cavity, which yielded to, and fled from the pressure, and returned whenever the pressure was forborn, and I could lift it up so as to be certain it was no tumor in the containing parts.

She had advice of several physicians, and took a great variety of medicines to no purpose, for the swelling continued to increase; she wasted, and at last died, aged fifty years, in November 1735.

I thrust a trocar into the right side of the belly, where it was most prominent, and drew off six gallons and an half of water, which appeared thin and clear as it was running out, but when collected had a good deal of oily matter swimming a-top. Upon laying open the body, we could see almost no fat in the cellular tunic, which in several places resembles the cutaneous muscles of quadrupeds. The muscles of the belly were as thin as parchment; the cawl was forced far up towards the thorax, except one small production which entered the hernia at the navel, and the whole of it was thin, with little fat. All the other bowels were pushed greatly upwards upon the diaphragm, by a large irregular body, which possessed all the lower part of the belly. Betwixt this body and the pubes there was a large empty bag, in which there was about half a pint of water, where all the water I had drawn off by the trocar had been contained.

The irregular body, which I soon discovered to be the right ovary, was near a foot long, about as much broad, and six inches thick; it was composed of many small bags of different sizes, containing a mat-

ter like mucilage. The coats of the larger ones were thinner than those of the smaller, which last in some places appeared a little cartilaginous, especially those about the middle of this body, where the morsus diaboli was fixed in form of an irregular bunch. The Fallopian tube was much lengthened and enlarged in its diameter. The bag, in which the water had been contained, appeared to be the external covering of the ovary, or else one of the hydatides. It adhered so firmly to the peritonæum in the circumference of the pelvis, that though it was very thick, I had difficulty to separate them. When this was removed, the womb and left ovary were seen in their natural situation and magnitude. In the womb there was about the bigness of a hazel-nut of coagulated blood. The other bowels were all sound, except the gall bladder, which was not above two inches long; the coats of it were considerably thick, and closely contracted upon two concretions, each as big as a middle-sized nutmeg; between which there was a small distance left, that would scarce admit the end of one's finger, in which a kind of whitish-coloured bile was lodged. On the under side of the concretion, next the intestine, there was a chanel, which easily allowed what bile was separated, to flow into the intestine.

*Remarks on the cure of agues; by ALEXANDER THOMSON, M. D. physician at Montrose. Vol. IV. art. 24.*

Vomiting in the beginning of the paroxysms of agues, was the practice of the antients. Then they supposed the morbid matter was disengaged and in fluxion, particularly about the præcordia, which they called its concoction, and therefore was then fit to be pumped up from the stomach. This is agreeable to the theory of the periodical returns of the paroxysms of agues, as given by Bellini and the other mechanical writers since his time. Another advan-

tage rises from this practice; by the vigorous shock given to all the parts in vomiting, the morbid matter is soon disengaged, and the fit made shorter, if not prevented. I have had good success with this method these twenty years past. The only alteration I have made is, that if the coldness of the fit go soon of itself into a vigorous shaking, without the sickness of the stomach, I postpone vomiting till the sickness begins in the hot fit. One half, or two thirds of an emetic, given at this time, will do more than a full dose when nature is at ease; and indeed while the morbid matter is blended with the liquors of the body in the intermissions, no vomiting medicine can well reach it. Vomits thus given, frequently put away the disease; or if another paroxysm comes on, it is so broken by a second dose, that the progress of it can scarce be observed. When the patients are treated in this manner, a third, or less quantity of the bark, otherwise necessary, is sufficient to confirm the cure.

This success encouraged me to give vomits in the analogous circumstances of other fevers, when the horror, or shivering, and sickness came on, and the benefit was incomparably greater than when taken at any other time.

A too hasty and preposterous method of giving the bark before the morbid matter is concocted and thrown out of the body, is attended with many unhappy metastases and direful consequences.

To deter all from such dangerous practice, I could bring many instances of jaundice, dropsy, asthma, and all the train of nervous disorders, brought on in a surprisingly short time, after such preposterous use of the bark; which otherwise, when given judiciously, after proper evacuations, is a noble and safe medicine in this disease.

i. A young man had taken five drams of the cortex in each interval of three fits of a quotidian ague. Instead of the fourth paroxysm, he had only a little horror or shivering. Next day, after some minutes shivering, his ancles were vehemently racked, as if twisted,

twisted, and cut at once. This agony lasted about five minutes, when the ankles being suddenly relieved, his knees were as long affected in the same way. Next the joints of the thighs were seized; to these succeeded a hardness, swelling, and pains of the belly. His thorax being next seized, he appeared as one strangled; then he fell down as apoplectic, and lastly turned delirious. When that ceased, after five or six minutes he seemed well, about as long as from his beginning to be attacked to his recovery, and then underwent the same symptoms, in the same order and time. He was cured by strong large blisters, emetics, and nervous medicines.

2. A young gentlewoman labouring under a quotidian ague, with some hysterical symptoms, had a trial made of the bark in a small quantity, and slowly given; but upon observing the nervous symptoms rather increase, I discharged the further use of it. Notwithstanding this, it was given till the ague ceased, when regularly, at the time of the paroxysm, after a little shivering, she became speechless, her breathing alternately interrupted about half a minute, she inspired with a hissing through her nose, had contractions of the hypochondria, and her belly was drawn in, with heavings and fallings of the shoulders, contractions of her neck, stretching of her arms, and gripings of the fingers. She remained thus twenty-five minutes, recovered then as long as to take a little sack-whey, and relapsed into the former circumstances. She remained thus four months; after which the intermissions were longer, and the symptoms varied: but she has now continued ill these nine months.

3. A gentleman long subject to the ague, resolved to keep it off by a constant diet of bark; he got quite free of his ague, but fell into violent lowness of spirits.

*Anomalous shakings after an ague cured; in a letter to Mr. MONRO, professor of anatomy at Edinburgh, from Dr. ANDREW WILLISON, physician at Dundee.* Vol. IV. art. 25.

**I**N July 1733, an unmarried woman, about thirty-years of age, of a plethoric habit, who had laboured under a regular tertian ague three months, took some herbs, which stopp'd the fits. She was then frequently seized with an universal shaking and trembling all over her body, which continued long. Sometimes these shakings seized her head so violently, that two men could not hold it; at other times one or both arms were thus affected. Her pulse was soft and languid, but her veins appeared turgid: she had no drought, her appetite was lost, no menses had appeared for three months; in the intervals from shaking she was drowsy, and inclined much to sleep.

She was let blood at the ankles, and took two mustard vomits; but these doing little service, the cold bath was tried, and her extremities strongly rubbed when she came out of it. After using this method daily for two weeks, she perfectly recovered.

*Anomalous agues cured; by Mr. DUNCAN BAINE, surgeon in Pembroke.* Vol. V. art. 49.

**J**OHN Rhenish, twenty-six years of age, of a strong plethoric habit of body, who had laboured under an ague half a year, for which he had taken a great deal of the bark, and other usual medicines, the thirtieth of August 1736, while I was inquiring into his case, was taken with a violent stamping of his feet, the convulsions gradually ascended from the soles of his feet to his legs, thighs, belly, back and shoulders; after which his head was violently convulsed, with a total deprivation of speech, but he had a most dismal vociferation, which might have been heard at a great distance; his abdomen and thorax

thorax working and heaving violently and unusually in the mean time. This fit having lasted half an hour, a profuse sweat broke out all over him, which relieved him, and he could now answer the questions I put to him. He told me he had several such fits of late, that he imputed them to a fright he had got in this month; for sleeping on the grass, when he awaked he saw a large adder coming towards his face, and getting speedily up in a fright went home, and was immediately seized with one of these fits, which had returned sometimes twice a day at the same time when his ague used to return. During the paroxysm his pulse was high and quick, his face inflamed, and his eyes ready to start out of his head. After the fit, he complained of a torturing pain of the bowels; his tongue was generally moist, and he had a suppression of urine.

In the afternoon I gave him a dram of salt of vitriol, in an ounce of oxymel of squills, which operated moderately. Next day he took a strong dose of tinctura sacra, with some drops of spirit of lavender, and an ounce of syrup of buckthorn, which purged him well, and his paroxysm returned an hour later than the day before.

September the first, ten ounces of blood were taken away at his arm, and he took frequently some spoonfuls of a julep composed of Aq. Rorismar. Salv. Rut. Lavendul. simpl. aq. Pæon. Bryon. comp. Sp. Lavendul. Sal. volat. oleof. and visc. quercin. with a scruple of pulv. de guttera, in the morning, afternoon, and at night. The blood being very fizzy, he was again blooded next day, and at bed-time took the pilul. anticolic. which operated very well towards the morning, and that day he escaped the fit. At night I gave him the following bolus: Rx. Pulv. antiepilept. alter. Quincy scrup. ij. Cort. Peruvian. drach. i. Sal. absinthii gr. x. Laudan. liquid. Sydenh. gutt. xx. Syrup. Pæon. q. s. ut f. Bol.

September the fourth, he began to take this electuary: Rx. Pulv. antiepilept. alt. drach. ij. Cort. Peruv.

Peruv. drach. vi. Sal. absinth. drach. sem. Syrup. Pæon. q. f. M. f. Electuarium, cuius cap. molem n. m. tertia quaque hora superbibendo cochlearia quatuor julep. prius præscript.

September the eighth, he took a vomit of ipecacuanha, which vomited him well, but not having purged him, I ordered him a clyster at night, and after it an anodyne of Philonium Romanum, which always gave him great relief from those pains of his bowels, which came after every fit.

The ninth and tenth, he continued the electuary and julep. Being still much troubled in his bowels, and sometimes convulsed, I gave him a scruple of calomel on the evening of the eleventh, and purged it off next morning, quieting all at night with the Philon. Roman.

The thirteenth, fourteenth, and fifteenth, he took the electuary and julep.

The sixteenth, seventeenth, eighteenth, and nineteenth, he used the following infusion: Rx. Pulv. Cort. Peruv. unc. i. Sal. absinth. drach. ij coq. ex aq. font lib. iv. ad lib. ij. colatur. affund. rad. gentian. galang. zedoar. calam. aromat. serpent. virg. ana drach. i. sem. cort. aurant. sicc. unc. sem. summit. absinth. roman. drach. i. centaur. min. scrup. ij. leni calore adhibito infund. per aliquot horas; dein colaturæ adde aq. theriacal. epidemic. ana unc. ij. vin. chalybeat. unc. iij. sp. lavend. comp. unc. sem. M. cap. cochl. sex tertia quaque hora absente paroxysmo.

The twentieth, the calomel, with the purgative and philonium next day, were repeated.

The twenty-fourth, the infusion was given; and now being much better, he went home the twenty-fifth; but his fits returning, I gave him eight grains of emetic tartar, and a little after he took a vomit of turbith mineral, after which he had no more fits; but I made him continue in the use of an electuary composed of bark, mistletoe, salt of wormwood, and elixir of vitriol, by which he recovered.

II. A gentlewoman, aged thirty, who lived in low fenny grounds, and was frequently subject to agues, some days after a hard labour complained of a pain on the os ischium, which removed down to the middle of the vastus externus muscle, and came every day at a certain hour, throwing her into a violent fever, which terminated in a sweat ; after which she became easy, eat and drank as usual. I gave her a vomit and purgatives, and then prescribed the bark, elixir of vitriol, and antispasmodic medicines, and applied a large blistering plaster to the pained parts ; by the use of which she is recovered.

*Anomalous appearances after an ague ; by Mr. ALEXANDER MONRO, professor of Anatomy in the university of Edinburgh, and F. R. S.*

Vol. II. art. 19.

**I**SABEL Duric, of a labouring station of life, was always irregular in her menstrual evacuation, being sometimes obstructed a whole year together, and frequently vomited blood, for which she had used a great variety of medicines, but never was relieved till 1727, which was the thirty-seventh year of her age, when she took some purgatives, and had the bloody vomiting only twice ever since. In November 1728, after a regular course of the menses, she was seized with a quotidian ague, which continued all winter, and wasted her greatly. Towards the spring the paroxysms became very irregular, both in their time and type ; she had a constant nausea and want of appetite with pains through all her body. From the first attack of the ague, her menstrua ceased to flow.

In the summer of 1729, she used many common cures for her ague, such as vinegar, the roots of the bellis minor, the peruvian bark, &c. which put it off for some time ; but it always soon had irregular returns.

In March 1730, instead of common fits, she was seized with a violent shaking of her arms, or of her head,

head, or of her legs, or of altogether ; which observed no certain period of time, either in its continuance or intermission, but attacked her three or four times one day, then took the form of quotidian, and afterwards intermitted several days, and soon again appeared in some of its former shapes.

On account of these anomalous shakings, and flying pains in her head, neck, breast and belly, she was admitted into the infirmary on the 15th of August, 1730. Her pulse was then natural, her appetite and digestion good, her belly did its office, her urine was in large enough quantity, of a good colour, and without any lateritious sediment.

Her disease seemed to yield, and at last to be almost cured, by the use of mustard vomits (a), repeated every three or four days, and by taking two drams of crude sal ammoniac every morning. But in the beginning of September, the pain of the stomach returned ; and irregular shakings soon succeeded, which did not yield to the former medicines. She was therefore ordered frequent and large doses of the stinking gums, galbanum and asafætida, with salt of hartshorn, and an aloetic purgative was now and then given her : These at first relieved her, but soon lost their effect, all the symptoms returning with their former violence. The vomits and salt were again tried ; which failing, she took the hotter alexipharmics, and these were succeeded by the strengthening stomachics : But tho' relieved for a day or two, on the change of the medicines, she was soon as bad as ever. Her case appearing tedious, if not incurable, she was dismissed the infirmary on the eighth of October.

After this she asked my advice. Her tremblings and pains continuing in the same way, notwithstanding

(a) The powder of mustard-seed is made into the consistence of a loch with warm water, in which a little sea-salt has been dissolved. Of this a common spoonful, sometimes two, diluted with tepid water, are given with an empty stomach ; it operates well as an emetic, and proves an excellent remedy in most nervous disorders. I have seen its good effects in the infirmary, and among my private patients.

some nervous medicines, till the middle of December, when her right arm swelled at the joint of the elbow, with racking pain, and her tremblings left her. Emollient pultices, with some ointment of marshmallows, were applied ; they relieved her somewhat of the pain, but the swelling of the joint increased, and a small suppuration came on in April. When the abscess was opened a little below the olecranon, a considerable quantity of watery pus was evacuated ; for want of proper care, the sore degenerated into two fistulous ulcers, which continue still to discharge a small quantity of thin ichor : her arm is bended and rigid, with little or no motion in the elbow ; but she has been all this time free from the other complaints.

*An extraordinary abstinence, first thirty-four days, and soon after fifty-four days; by JAMES ECCLES, M.D., Vol. V. art. 43.*

**A** Young woman, about sixteen, had her menses regularly after she passed fifteen, till February 1720, when, upon the unexpected death of her father, at the time of their return, she had an immoderate flooding, with fainting and trembling fits, which went off in a short time : she continuing pretty well till near the monthly period, when she had only an appearance of them, and these fits recovered, but abated soon after. Next month she had not the least sign of them, and the fits then returned more frequent, violent, and evidently convulsive.

About the beginning of May she was blooded and vomited. In few days a second vomit was given, and soon after it was over, she was seized with a difficulty in swallowing, which in two or three days increased so, that she could swallow nothing, but upon every attempt fell into a fit, attended with prodigious tremblings and reciprocal distensions of the thorax and abdomen, which were performed in a second, and continued to be repeated sometimes a quarter,

quarter, sometimes half an hour, and always ended in a rigidity of the whole body, so that it was impossible to bend any of her joints. She continued without eating or drinking from the middle of May to the fifteenth of June, when a spoonful of an anti-hysterical julep was given her ; but as soon as it reached the part of the gullet affected with the spasm, which was about two inches below the pharynx, the tetanus seized her. As no remedies could be given by the mouth, antispasmodic and nervous medicines were applied to the neck, but without success ; a whale-bone rod, with a bit of sponge fixed to it, was thrust down to her stomach, which met with considerable resistance at the contracted part. However, after the second trial, the spasm yielded, and she could swallow liquids or solids without trouble for three weeks, but vomited up every thing except the antihysterical mixture, cherries or straw-berries, and very often with some green stuff.

She had been costive all the time of this abstinence, and continued so after it was over ; for which laxative clysters were injected ; after one of these, she evacuated, by the anus, two pounds of blood in two days ; this flux was restrained by vulnerary and astringent clysters ; but in a short time after, the spasm returning, increased so much, that by the middle of July she could not swallow any thing, and continued fifty-four days without eating or drinking, often affected with a more violent tetanus than formerly, and always insensible during the fit. When there was an attempt made to thrust down the whale-bone, the tetanus returned with great violence.

After she had fasted three or four weeks, she lost her sight (her eye-balls being drawn upwards by the convulsive motion) and soon after her hearing, but knew her friends by the touch. When she had continued in this condition a month, her sight, and, some days after, her hearing returned.

September the tenth, she drank some ale freely, and continued to take it, and sometimes whey ; she could eat apples or pears raw or boiled, but no other solid

solid food. When she had drank ale or whey, she fell into a fit, which lasted an hour or two, when her reason returned. The least disappointment or delay in doing any thing about her, brought always a fit of the tetanus.

In this way she continued till March 1721. On taking her out of bed, which was only once in eight or ten days, she had an attack of the tetanus, which did not leave her till she was laid down again.

Soon after this, she began to have hard swellings behind her ears, which remained there the eleventh of September, 1721. At this time she could sit up in a chair some hours, and eat any kind of garden-stuff, but not taste flesh or broth.

All the time of her first and second fasting, she declared she had no sense of hunger or thirst, and she had not lost much of her flesh.

During the first course, she had nourishing injections of broth; sherry, and the yolk of an egg once, seldom twice, in twenty-four hours, and the same during the first thirty days of the second course; after which they were left off, the slightest motion bringing a violent fit of the tetanus.

In both these courses her pulse was full, strong, and equal, but sometimes slower than natural, her breathing free and easy, her urine like that of a healthy person.

In the last, as well as the first, she was costive a whole month, which made it necessary to give her laxative clysters.

She continued much in the same way, subject to returns of the convulsive motions and tetanus, easy in the intervals, no way sensible that she had been in a fit, tho' she perceived when it was coming on. She continued to eat any garden stuff, but lost her flesh. In the end of December 1721, she died as she was talking, without having made any complaint, and without any convulsive struggle.

Her body was not admitted to be opened, which prevented any further examination than looking into the

the part of the gullet which had been convulsed, where nothing extraordinary could be observed.

*An extraordinary abstinence during fifty-years;  
by the reverend Mr. THOMAS STEILL, minister  
at Avandale. Vol. V. art. 44.*

JANET Young, sixty-four years of age informed me, on the twenty-ninth of August 1729, that she fell from her horse into the water, in the eighteenth year of her age, in the month of December, having her menstrua upon her, which being the first, never recurred; but that ever since, till about four years ago, she had a frequent vomiting of blood, and even in the intervals a continual reaching or propensity to vomit, throwing up nothing; that since her fall she had taken little or no meat, but lived in the summer only on whey, and in the winter on milk, or milk and water mixed, or pure fountain-water, of which she drinks pretty liberally, smoaking very much tobacco; to which practice she was obliged to betake herself, whenever she felt that propensity to vomit, it being the only means she found effectual to divert it. That since the middle of May last, she had neither tasted flesh, fish, fowl, meal, broth, herbs, roots, nor any kind of meat whatever. She voided little or no excrements by stool, and for the space of sixteen years she voided none but once in the year, which was always in the month of March, much like a small bit of roll tobacco. She sweat a little, and at that time slept pretty well. She found no alteration till August 1733, when her sleep was much broke by violent reachings and inclinations to vomit, while at the same time she threw up nothing.

Soon after she fell into a looseness, and then eat a little thin oat-meal pottage every day. Her reachings to vomit left her; and in a short time she sunk under her disease, and died.

*A collection of matter in the liver evacuated by stool; by Mr. JAMES JAMIESON, surgeon in Kelso. Vol. IV. art. 29.*

THE wife of George Tait, for two years, had been affected with pains about the region of the liver, a short and dry cough, loss of appetite, irregular tremors, and feverish paroxysms, like those of an ague, and a suppression of the menses, when a hard unequal tumor appeared under and before the bastard ribs, proceeding gradually both ways ; till crossing the linea alba some inches below the navel, it filled the whole epigastric region to the xiphoid cartilage, unequally projecting the muscles externally. Vomitings came on, she grew hectic and emaciated, and her belly was always costive.

I ordered her to take a gentle dose of the pilul. benedict. with calomel at bed-time, and to repeat it every night, or second, as she found it agreed with her. To use morning and evening an emollient and aromatic fomentation ; and the same materials to be used sometimes for cataplasms.

The sixth day the swellings were entirely gone, and the patient cheerful, and only now complained of a fulness in the hypogastric region, with a little dysury. Upon striking it, I perceived the contents fluctuate, and therefore continued the pills, and added an infusion of aromatic diuretics in white-wine, with millepedes and some sp. nitri dulcis. The fomentation was used only at night.

On the fifth night she had a stool, whereby about a pound of a parenchymatous kind of substance, the thickness of brown paper, all cohering, of the toughness of well boiled tripe, and diaphanous, was discharged, without any other excrement. From that time to this she has continued well.

*An uncommon dropsy from a steatomatous omentum;  
by ALEXANDER MONRO, professor of anatomy in the university of Edinburgh, and F.R.S.  
Vol. IV. art. 30.*

Christian Seton was subject to an erysipelas in her legs from her youth : at thirty-one years of age she married, but never conceived. Her menses left her when she was thirty nine years old. Three years after, viz. in July 1727, she perceived her belly grow bigger than it used to be. In August following, her legs also began to swell ; several purgatives, and other medicines, were ordered her; notwithstanding which her disease increased very fast.

In the beginning of October her belly was so big as to reach down beyond the middle of her thighs when she was sitting ; the bastard ribs and epigastric region were violently protruded outwards, and the point of the xypoid cartilage was turned directly forwards. Her thighs and legs were œdematosus, and double their natural thickness ; the upper part of her body was emaciated ; she had no appetite, but was thirsty ; she was costive, and passed little urine ; her tongue was slimy ; her pulse weak, and frequent ; her breathing so difficult, that she was obliged to sit always in an erect posture ; a perpetual cough, which made her spit up a thick mucus, kept her from sleep ; she was not able to stand ; water was felt to fluctuate in her belly.

Several of the most pressing and uneasy circumstances of her case, depending on the violent distension of her belly, I tapped her, and let out twenty-four pounds of water, which at first came off briskly in a stream, but in a little time only dropp'd from the canula, and at last stopp'd before the swelling of the belly was near gone ; tho' during the operation the abdomen was tightly compressed, and the pipe frequently cleaned. She bore the evacuation without the least

fainting, and I left her easier, with a belt well charged with the fumes of benjamin, mastich, and amber, applied to her belly, and drawn pretty tight. In the evening she took a cardiac mixture, with some drops of liquid laudanum ; she slept well all night, and was considerably refreshed in the morning.

The regimen now ordered, was to abstain from drink ; but when she was thirsty, to put a little bit of tamarinds with crystals of tartar into her mouth : to eat flesh, or with any other food to mix wine and spices. Every day her belly was well rubbed with flannels charged with the aromatic fumes. Every fourth day she had a purgative given her of decoct. amar. cum dupl. sen. unc. ij. oxymel. scillitic. unc. sem. syrup. de rhamn. unc i. pulv. jalap. i. scr. M. And four times every intermediate day, she took the bulk of a nutmeg of an electuary composed of rad. helen. irid. florent. gum. ammon. and honey, washing each dose down with one fourth of the following liquor. Rx. decoct. amar. unc. iv. sp. succin. drach. ii. misc.

By the use of this sort of diet, and these medicines, she passed large quantities of water both by stool and urine, and in a few weeks all her symptoms went off, except the swelling of her belly, which was however greatly diminished, and gave her no uneasiness.

In February 1728, having sat long in the cold, and neglected her medicines for some time, the quantity of her urine lessened, she became costive, and the former bad symptoms returned. Nor could I after this procure the evacuation of water, which had been so beneficial to her, by any medicines ; so that in a short time she relapsed into as bad a state as ever, with the addition of a sharp pain under her short ribs, especially of the left side.

July the second, I again tapped her with a larger trocar than before, and drew off first mucus, then pus, which sunk immediately to the bottom of the vessel, and had white membranes mixed with it. The mucus and pus ran alternately in all sixteen pounds ; during the evacuation I was frequently obliged to draw

draw out the tough slime which stopp'd the pipe with a probe. When I thrust the pipe softly into the cavity of the abdomen, it was soon resisted by a firm solid substance, which on the least touch bled. The lower part of the belly subsided remarkably on this tapping, but the epigastric region not at all.

The patient being no way relieved by this evacuation, I again tapped her July the 14th, with a trocar as large as my little finger, but brought away only eight pounds of purulent matter. In ten days after she died, and I examined her body.

The body, being laid on a table, had the appearance represented, plate XXI. fig. 1. the belly A hanging down over the thighs, and monstrously swelled every where, but with a depression D cross the belly, about mid-way between the navel B and the sternum ; the under part of which was advanced, and the point of the xiphoid cartilage E was directed streight forwards. The hypochondria were also considerably raised. The thighs F, and legs, were greatly œdematos, and the rest of her body was much emaciated.

The cellular tunic of the abdomen was very thin, without any water contained in it. In cutting thro' the muscles, and peritonæum, on the left side of the navel, two pounds of yellow water ran out ; and from the cavity G (fig. 2) where this was lodged, ten ounces of pus were taken, with white tender membranes swimming in it. Having cut the containing parts from the navel to the left loin, no more water appeared, but eight ounces of pus were collected. All round the cavity G, I observed a white hard substance composed of conjoined vesicles, and adhering strongly to the peritonæum. This I cut thro' at H, into the cavity, and, raising the containing parts strongly, saw behind them the knotty substance BB adhering to the peritonæum three inches further up, and then separating from the peritonæum, it was extended backwards, and supported a considerable quantity of water D, lodged above it. I next cut off

from the peritonæum that substance, which being extended from one side of the abdomen to the other, divided the cavity into two. After this I divided the containing parts, and turned up the two quarters of the teguments now raised on the ribs, to have a better view of the vesicular substance BB, adhering to their internal surface. It consisted of a fatty membrane, beset with vesicular bodies, full either of mucus, or of a white hard steatomatous substance. The epigastric region C, fig. 1, was exceedingly enlarged, and out of the cavity D, fig. 2, and 3, formed in it, I took thirty pounds of water, which had pressed out the surrounding bones, and thrust the diaphragm considerably upwards. I next dissected the teguments from the vesicular body F, fig. 2, as far as it reached, which was to the ossa pubis, and there divided them.

All the teguments being removed, below the epigastrium D appeared a large membranous sac C, of a brownish-black colour, distended with air, and reaching from the extremity of the cartilages of one side, to those of the other, when it sunk down under both hypochondria: the middle part of it was much the largest; no division into cells or longitudinal ligaments were to be seen in it, tho' I found afterwards it was the great arch of the colon. The part of the fatty membranous body left, when I cut this in raising the two superior quarters of the teguments, mounted over this sac, and then, sinking backwards, adhered to another viscus; and from the under part of this same sac, depended a white vesicular fatty substance, with large blood-vessels, I, spread on it. This at first was thin, but gradually, as it descended, became thicker, till it was hid by the anterior lamella which had been dissected off from the peritonæum. When this last was raised, I softly thrust my hand into a large bag formed between the two, as far down as the ossa pubis, where they made one continued substance. Besides these I could observe no other viscus, except the cæcum K, lodged in the cavity of the right ilia; wherefore I dissected the vesicular body away from all

the

the parts it adhered to ; all the cells cut in this dissection poured out water. When this body was wholly removed (see fig. 3.) I could not at first discover any thing in the cavity below, except a flat circular protuberance L, lying on the vertebræ, covered with a dirty black-coloured membrane, and this, in a great many places, had a white tender membrane, resembling the skin formed on boiled milk when it cools, lying upon it. The cavities of the loins were very large, and filled with water, as well as the pelvis, and under the water pus was every where found. When these liquors were taken out, the surface of the cavities had much the same appearance with that of the large middle protuberance. The cellular substance surrounding the pelvis was two inches thick, and distended with water and mucus.

I perceived a faint resemblance of the small guts through the black membrane, and discovered the colon M N in the loins. When the membrane was taken off, all the intestines came in view, of the colour and size usual in hydroptic emaciated bodies ; but the small guts and folds of the mesentery, where they were contiguous, slightly adhered to each other by a weak sort of membrane, which, when tore, yielded water out of its cells.

The great guts were distended with air, and in a natural condition.

The mesentery was shorter than ordinary, but otherwise sound.

The stomach, hid in the great epigastric cavity, was very little larger in its transverse diameter, than the small guts, but of a natural colour. From its fundus the remains of the cut omentum depended, which was the vesicular substance I at first divided in opening the abdomen.

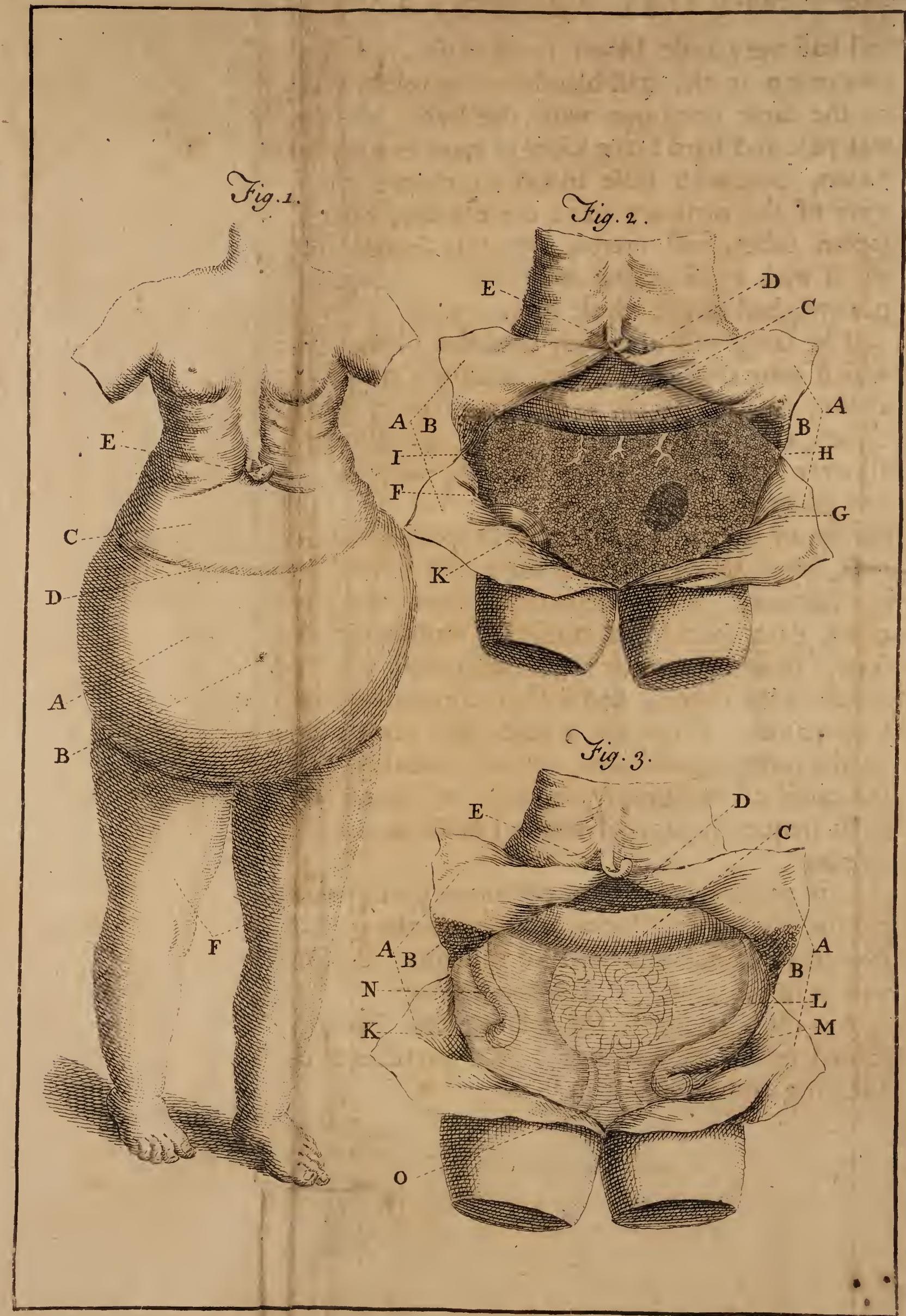
The liver was hid under the bastard ribs, and adhered so firmly to the livid peritonæum by its membrane, which was about a quarter of an inch thick, that I could not observe its colour or substance till I had taken off the membrane, when it looked pale,

and had very little blood in its vessels. I found no concretion in the gall-bladder : the spleen was much in the same condition with the liver : the pancreas was pale and hard : the kidneys were in a natural condition, but with little blood in them : the ureters were of the ordinary size : the bladder, ovaria, Fallopian tubes, and uterus, were all sound, only covered with a thick livid membrane. The water and pus weighed in the whole forty pounds.

The large vesicular body consisted of two lamellæ, which were thin above, but gradually turned thicker as they descended, till at the lowest part, where they united, they were six inches thick. Each was covered all over with a smooth membrane, only the anterior was ulcerated at its superior external part. Several ounces of purulent matter, with pellicles swimming in it, were taken out from the cavity formed between the laminæ. When the external membrane was separated, each seemed to consist of vesicles of different sizes, some of which were distended with water, others with mucus, and a third sort with a steatomatus matter. From the whole, this body appears to be the omentum diseased, which probably might be the cause of the dropsy, as well as tumors of other parts frequently are, of which I have seen several examples.

Is it peculiar to the membranous parts, when suppurated, to have pellicles mixed with the pus? I have seen them in inflammations of the guts and pleura, as well as in the omentum above-mentioned.

Are these pellicles, the membranes, separated and turned tender by soaking, or the particles of the pus adhering and pressed firm?



# THE HISTORY OF THE CIVIL WAR IN AMERICA

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*A total obstruction of the valve of the colon; by Dr. THOMAS SHORT, physician at Sheffield, and F.R.S. Vol. IV. art. 31.*

APRIL the twenty-fourth, I was called to G. Lee, aged about seventy, of a phlegmatic constitution, and gross habit of body; he had a hernia intestinalis for many years, and had become constipate twelve days before: the first week he took no medicines, but next took several things, during which he was not wholly deprived of stools, but the fæces were inconsiderable, small, and hard; he vomited whatever he swallowed, with fetid excrements: afterwards he had several motions, but no stools: he complained of a sharp pain in his belly, especially in that part where the ilium ends, and colon begins, and indeed all over the ilium, with a sense of weight and fulness. His hernia was not then down, his sickness little; he was able to walk about. Laxatives were given in different forms to no purpose, and air was forced by the anus, by a bellows, into the intestines; it returned immediately without smell. The swelling of his belly, and other symptoms, increased till May the second, when he died. After his death, the passage at the valve of the colon was found shut up, and about two fingers breadth of the gut there was grown into a hard solid substance, below which were no fæces. The small guts were much inflamed and livid.

*A retention of seed in coition; by WILLIAM COCKBURN, M.D. and F.R.S. Vol. I. art. 35.*

A Venetian, aged twenty-two years, was married to a lady, with whom he cohabited with a good deal of vigour, but never could emit seed in the coition, whereas in his dreams he could discharge very freely.

I was of opinion it consisted altogether in the urethra, being closely shut up by vigour of the erection in coition, which formed so great a resistance, that the powers which throw the seed out of the vesiculæ seminales, could not overcome it ; whereas in dreams the pressure of the urethra being much less, an evacuation was made. The method of cure was not less successful than obvious ; for gentle evacuations, and a slender diet, compleated it.

*Inability of coition from the piles ; by the same.*  
Vol. II. art. 27.

**A** Woman had such an intolerable pain when she had any commerce with her husband, as rendered the action impracticable. There was no discharge from the womb, nor any hardness about its neck ; and it appeared in every respect blameless. She was subject to inward piles, which were kept upon her by purges and other medicines, which had been employed for her relief. These appeared to be the cause of her complaints, which ceased upon being cured of the piles.

*A palsy of the inferior extremities, with mortification ; by Dr. JOHN DRUMMOND, senior, late president of the royal college of physicians in Edinburgh.* Vol. I. art. 36.

**A** Girl of ten years of age, having catched a great cold in October 1705, complained next day of a pain and weakness of one of her legs, and the day following lost the use of both, when the pain ceased. Two weeks after she lost all sensation and motion from the loins downwards, and voided her excrements and urine involuntarily.

November the ninth, the following fomentation and ointment were applied to her limbs : Rx. Fol. Rorif. mar. Salv. Absinth. ana M. i. Flor. Chamæm. Sambuci, ana pug. ij. lign. Guiac. unc. ij. M. coq. ex aq. calc.

calc. lib. viij. ad lib. vi. addendo tempore usus Sp. V. unc. iv. Rx. Ung. opodeld. unc. i  $\beta$ . Ol. Rorifmar. chemic. drach. sem. Ol. Absinth. chemic. drach. ij.

The twelfth, some little pustules appeared on one of her legs, for which the white ointment with ceruss was ordered.

The fifteenth, she took half an ounce of syrup of violets, mixed with half a dram of tincture of jalap, and about noon half an ounce of syrup of buckthorn was likewise given her, but she had no stool.

The sixteenth, syrup of buckthorn and violets, of each half an ounce, with two scruples of tincture of jalap were given, which did not in the least operate. At five o'clock a clyster, composed of eight ounces of the common decoction, half an ounce of lenitive electuary, and five drams of emetic wine, were injected; but this she also retained till about nine, when a sharp suppository was introduced. The blisters on her legs began to be so big, that the fomentation and ointment could not be used. Being cut, the skin below appeared black, but separated easily afterwards, and healed with the white ointment.

The nineteenth, the purgative was renewed with the addition of one scruple of tincture of jalap, but without effect. A suppository was given at night.

The twenty-third, her thighs and legs were sweated plentifully in a box, in which spirit of wine was burnt. This was continued for some days, and then both her legs appeared covered with blisters; at the bottom of each, when cut, was a black spot, which separated by suppuration, in the same manner as the eschar of a caustic. The Fordid ulcers remaining after these gangrenous crusts casting off, were cured with common digestive and lime water, though frequently the bones were discovered by them; and when they seemed to be near healed, a new gangrene discovered itself on one side of them.

December the fourth, in the evening, she took four grains of calomel in conserve of roses.

The fifth, the bolus was repeated, and in the night she voided a great deal of black fetid excrement.

The ninth, her pulse felt very weak and languid; the purging still continuing, this julap was prescribed : Rx. Aq. Meliss. Ceras. nigr. ana unc. ij. Cinnam. s. v. drach. vi. Confect. Alkerm. drach. sem. Laud. liquid. gut. 25. Syrup. Caryoph. unc. i. M. sumat. cochleare ad libitum. At night she took three grains of sweet mercury made into a bolus with diascordium.

The tenth, a black spot, as large as half a crown, appeared on the os sacrum; it was hard, as if made by burning, and turned the edge of the bistoury, with which it was scarified; when the scarifications were made on every side to the sound flesh, the mortification was found to reach as deep as the bone; it was dressed with tincture of myrrh and aloes, and common digestive to the sides.

The eleventh, the black mortification had spread an inch on each side. It was again scarified all round the edges, and dressed as before.

The twelfth, the sphacelated parts began to separate, but another gangrenous spot appeared on the left hip, where the os femoris is articulated with the ossa innominata.

The fifteenth, another spot, as broad as a crown, was observed on the under part of the left hip, one inch and an half distant from the podex, and stretched towards the pudenda. Another little gangrene was remarked at the same time upon the right hip-bone. All of them were scarified and treated after the same manner. When the gangrened parts entirely separated, the bone was discovered in each of them. All this time the patient purged incredible quantities of black and extremely fetid fæces.

The seventeenth, she took this bolus: Rx. Limat. Mart. gr. v. Aquil. alb. gr. iij. Conserv Ros. q. s. ut f. bolus, which was repeated on the eighteenth and nineteenth at night. The ulcer, by which the os sacrum was discovered, began to appear clean, and the bone to be covered with flesh.

The twenty-third, a new mortification appeared on the lower edge of the ulcer, which, when separated, discovered a considerable share of the os sacrum and coccygis. At night, and on the twenty-fourth, the bolus last prescribed was given her.

The twenty-fifth, four grains of turbeth mineral were given, which vomited her gently.

The thirtieth and thirty-first, at night the last bolus was repeated.

January the second, 1706, the vomit was repeated.

The fourth, the cartilage, which covers that part of the os ischium on which the tendon of the internal obturator muscle moves, separated, and was brought away: so that by the mortification on the lower part of the left hip, the musculi obturatores, pyriformis, quadratus and gemelli, were destroyed, and by the other on the joint of the thigh, the glutæi were also ruined.

After this her pulse was so weak, that nothing was ordered except a small decoction of sarsaparilla. Several new gangrenes appeared at the edges of the old ulcers, which, separating, enlarged these ulcers so, that a man's whole hand might have been thrust into some of them.

The tenth, the os coccygis came out.

February the fourth, the great trochanter separated from the thigh-bone, and dropped out, and the ligaments about the joint of the thigh-bone putrified; the head of the thigh-bone thrust itself out at the ulcer, and at every dressing required to be reduced. She began now to void fæces of the ordinary colour and smell, but her pulse still becoming weaker, and her strength decaying, she died on the twenty-first of February.

During the whole course of her disease, she never complained of pain or sickness, but diverted herself as other children use to do, and kept a good stomach till about the middle of January, when she was considerably weakened.

From

From the beginning of December till near the middle of February, she purged at least three or four pounds of black and very fetid matter every day.

All the month of February, her legs, thighs, and belly, were œdematos and remarkably big.

*A man, dead in appearance, recovered by distending the lungs with air; by Mr. WILLIAM TOSSACH, surgeon in Alloa. Vol. V. art. 55.*

**N**Ovember the eleventh, 1732, early in the morning, an unusual steam was observed to come out of a coal-pit, which was found to be the smoke of coals, which lay about ten fathoms from the bottom of the pit, on fire in two places. This pit, and all the others which had any communication with it, were shut up close to smother the flame, and continued thus shut up till December the third, when they were all opened. The one, where the fire had been, sent out a most nauseous steam, so that no body could come near it, except to the windward. After some hours, the colliers and others ventured down into this pit, which was thirty-four fathoms deep, but soon came running up panting and breathless; they who came latest being scarce able to speak, so much as to tell that one of their number, James Blair, was left dead. Two men, who were no colliers, soon after went down, and others, animated by their example, accompanied them, and brought up the poor man by head, shoulders, legs, or arms; their hurry was so great, they did not think how they carried him. When he came to the mouth of the pit, which was about half an hour, or three quarters, after he had been left in the bottom of it; two had him by the arms, and two by the feet, with his back uppermost. I made them set him down at some distance from the pit, turning him supine. The colour of the skin of his body was natural, except where it was covered with coal-dust; his eyes were staring open, and his mouth gaping

gaping wide ; his skin was cold ; there was not the least pulse in either heart or arteries, and not the least breathing could be observed ; so that he was in all appearance dead. I applied my mouth close to his, stopping his nostrils with one hand, and holding my other on his breast at the left pap ; I blowed my breath as strong as I could, raised his chest fully with it, and immediately I felt six or seven very quick beats of the heart ; the thorax continued to play, and his pulse was felt soon after in the arteries. I then opened a vein in his arm, which, after giving a small jet, sent out the blood in drops only, for a quarter of an hour, and then he bled freely. In the mean time I caused him to be pulled, pushed, and rubbed, to assist the motion of his blood as much as I could, washed his face and temples with water, and rubbed sal volatile on his nose and lips. Though the lungs continued to play after I had first set them in motion, yet, for more than a quarter of an hour, it was only as a pair of bellows would have done ; that is, he did not so much as groan, and his eyes and mouth remained both open. After about an hour, he began to yawn, and to move his eye-lids, hands, and feet ; I then put water, into which I had dropp'd sal volatile, into his mouth, which he swallowed, and caused him to be carried into a house hard by, where I set him in a chair reclining backward. In an hour more he came pretty well to his senses, and could take drink, but knew nothing of all that had happened after his lying down at the foot of the ladders, till his awaking, as it were, in the house. Within four hours he walked home, and in as many days returned to his work, but complained for a week or two of a violent pain in his back, which I believe was owing to the way of carrying him up out of the pit (a).

(a) See this extraordinary affair handsomely accounted for in page 240 of the preceding volume. As the consequences arising from this case, are of the utmost importance to mankind, it has been again communicated to the Royal Society.

*An uncommon angina ; by ALEXANDER MONRO,  
professor of anatomy in the university of Edinburgh, and F. R. S.*

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**T**Hirty-four years of age, subject to plethoric indispositions, complained of being stiff with cold, and very weary, of pains in moving his muscles, and perpetual yawning. On going into bed, he was seized with an aguish paroxysm, which made a regular course before morning. Next day he was feverish, and still complained of pains through all his body, and therefore took a laxative ptisan, which operated gently, and gave him considerable relief. Next day he was almost free of his former complaints, but the right amygdala was swelled and painful, for which the ptisan was repeated. In the morning of the fourth day, the amygdala was less, and freer of pain, and, except a little bitterness in the mouth, he had scarce any other uneasiness. In the afternoon the left amygdala became painful on the least attempt to swallow ; his pulse grew quick, but not very strong ; sixteen ounces of blood were taken from the jugular vein ; after which his pulse became quick, strong, and full ; upon which eight ounces more were taken away : he then inclined to faint, but in a quarter of an hour after, his pulse was near as strong and quick as ever. The pain of the left amygdala continued increasing, and all the teeth, in the same side of the lower jaw, were also violently affected, but the pains were most exquisite when he swallowed. A small swelling of the right amygdala was observed, and an erysipelatous redness of the uvula, velum pendulum, and left amygdala, without any tumor. After he went to bed, the pains were racking, especially when he swallowed his spittle. About midnight he received the stream of warm water into his mouth, and the pain remitted, by leaning his head forward, and allowing the saliva to run out of his mouth, he passed the rest of the night in a drowsy way. Next morning his

his deglutition was performed with great difficulty and pain, and he was very hoarse, but had no difficulty of respiration, and the fulness and strength of his pulse were less, but its quickness remained. His throat had the same appearance as the night before ; the ptisan was repeated ; the steam of warm water was often made use of, and an emollient cataplasm applied on the pained parts. In the evening the pain was less, and the pulse better, but the hoarseness continued. A blistering plaster was applied on the neck and back, which did its office well, and the patient drank two bottles of emulsion in the night ; at noon of the following day, the strangury came on violently, of which he was relieved by injecting an emollient clyster with turpentine. The pultice was renewed, and the steam of water frequently applied ; a mild resolvent gargarism assisted the evacuation of mucus, which began now to be secreted in more than ordinary quantity. In the evening he seemed pretty free of fever, and all his troublesome symptoms were considerably removed. The blistered parts discharging plentifully the two succeeding days, he seemed to mend apace, but still continued the pultice, steam, and cataplasm. On the ninth day of his disease, finding in the morning the pain increased, he took the ptisan, and plied the topical medicines ; but through the day the symptoms gradually increased, till the evening, his pain, in the left amygdala and teeth, was more violent than ever, and the hoarseness worse ; his pulse was low and quick, he was drowsy, and passed little urine. No swelling could be seen on the left pained side, and he breathed freely. He drank largely of warm posset, made with rhenish wine, and chewed long pepper with the teeth of the affected side ; his urine soon came in great plenty ; he discharged great quantities of mucus at the mouth, and in two or three hours was freer of pain ; his pulse turned slower, and the dozing went off. The gargarism was renewed with the addition of some aq. theriacal. and sp. nitr. d. and theriac. andromach. was added to the cataplasm. By the use of these medicines he was

greatly recovered in the two following days, and nothing remaining the third, except a little bitter taste, a trifling swelling in the right amygdala, and a weakness in the left side of the fauces, he went abroad, which he continued to do a week, using a spare diet, and applying the topics, in which time he got quite free of all uneasiness except a dull pain of the left side of the fauces, especially in yawning; and he imagined all the food he swallowed passed only by that side, where sometimes a little of it stopp'd, and was with some trouble passed back again into the mouth. To remove this weakness, he, one evening gargled his throat with claret wine and a little aq. theriac. mixed. That night he was sensible of a straitening in his breath, and in the morning, when he awaked, was quite hoarse, breathed with more difficulty, and, on coughing, his head and eye-balls felt as if strongly girded, his face became red, and he began to hiss in breathing. All these appearances went greatly off after breathing in the steams of warm water, and drinking warm tea. In a few hours after he swallowed pills composed of mercur. d. and resin of jalap, which operated mildly, and removed all the causes of complaint considerably, and a second such dose, taken two days after, removed all of them entirely, except a little weakness in the left side of the fauces, and an obtuse pain there in yawning, which remained several weeks after. What was the particular seat of this anomalous angina? Will the uses assigned to the diaigastric muscles, in an article formerly given (a), be of use to discover it?

*An asthma with uncommon symptoms; by the same.* Vol. III. art. 25.

**M**R. James Ure was sometimes troubled with a palpitation at his heart, a trembling in his hands, and faintness, being always subject to a cough, and having generally little appetite, and two or three

(a) See page 14 of this volume.

loose stools a day. In October 1730, the fifty-fifth year of his age, having catched cold, a cough seized him, with which he brought up a small quantity of thick slime, and complained of a difficulty of breathing; he lost all appetite, his belly became bound, his urine was in small quantity, and he could not feel his own pulse. These symptoms continued rather upon the increase for eight days.

October the twentieth, his difficulty of breathing increased so much upon lying down, that he was obliged to sleep in a sitting posture; his feet and legs were œdematos, there was no pulse to be felt in the arteries of his wrist, neck, temples, or hams, but only a sort of trembling; the veins of his arms and neck were large and stretched with blood; he could take no food, was somewhat thirsty, but his tongue was not dry, or his skin hot; when the cough attacked him, he forced very little phlegm up; but his breathing became exceeding laborious; his face turned red or purple, and he complained of a violent head-ach; when he was free of the cough, he walked, complained of little, and said he was scarce weaker than when in health. To prevent the bad effects of the cough, twelve ounces of blood were immediately let; he bled freely, and did not turn faint. In the evening a terebinthinate clyster was injected, which purged him gently. He was desired to take any sort of mild food which his stomach could receive. Rhenish wine and water were given for drink, into which he frequently put forty drops of the following mixture: Rx. Elixir. pectoral. unc. i. Tinct. castor. drach. ii. Sp. salin. aromat. drach. iii. and every two hours he swallowed two spoonfuls of Oxymel pectorale. At bed-time he took this bolus: Rx. Sperm. cet. scrup. i. Sal succin. gr. v. Conserv. ros. scrup. i. Syrup. alth. q. s. ut fiat bolus. Next morning there appeared no change, and he took Ipecacoanhæ gr. xxxv. Oxymel scillit. unc. i. This vomited him six times, without increasing the head-ach, or difficulty of breathing, and brought off a good deal of slime. He

seemed a little relieved after this, and continued the medicines prescribed the day before. At night a blister was applied to his neck and shoulders; he repeated the bolus, with a cooling emulsion for drink. The blister rose well; his urine was in large quantity, with a good sediment: notwithstanding which, his legs were rather more swelled, and the other symptoms continued. The bolus was again given in the morning; he still drank water with rhenish wine, and took frequently a spoonful of the following mixture.

R. Aq. hyssop. Puleg. ana. unc. iij. Cinnam. f. v. Raphan. compt. a. unc. j. Gum: ammoniac. drach. ij. Sal. succin. drach. sem. Oxymel. scillit. unc. ij. Syrup. alth. unc. i. M.

He continued much in the same way all the twenty-second, and twenty-third, only his legs and thighs swelled more, and he complained that his clothes were too tight for his belly.

In the morning of the twenty-fourth, he took this bolus: R. Pulv. rhei scrup. i. Aquil. alb. Pulv. jalap. a. gr. v. Syrup. de rhamno, q. s. ut fiat bolus capt. e syrup. violarum. This purged him mildly, and the quantity of his urine increased considerably, and his belly became less swelled, which relieved him somewhat of the difficulty of breathing.

Next day he began to use a medicated wine: R. Rad. irid. florent. Scill. Acor. ver. Helen. Raphan. rust. a. unc. sem. Gentian. drach. ij. Rub. tinctor. unc. sem. Cortic sambuc. Ebul. a. unc. sem. herb. marrub. alb. M ij. Absinth. rom. Centaur. min. a. m. sem. Bacc. juniper. unc. i. sem. sal tart. drach. iij. incis. & contus. s. a. m. ut fiat malia infundend. in vin. Lisbon. # vi. Colaturæ capt. unc. ij. mane & hora quinta vesper-tina. This day, and the following, his urine passed plentifully with a large sediment; the swellings diminished, and his cough and breathing were easier; his pulse was full, strong, slow and equal; but two hours after I could again feel no more than the weak trembling formerly mentioned.

The twenty-seventh, the purgative bolus was repeated. On the twenty-eighth, his pulse returned, continuing

continuing afterwards firm and strong, and he recovered his former health in a little time by the use of the medicated wine, pectoral mixture, and the purgative sometimes repeated.

About a month after, having got cold again, his symptoms began to return with the same state of his pulse; but upon taking the former emetic and purgative, they went off; and to prevent a second relapse, he took strengthning chalybeate medicines, with the stimulating gums, for some time.

In the beginning of January 1732, he was again attacked with the asthma and want of pulse, which two doses of the purgative removed. After a cough, which continued some days, in the beginning of February, his pulse could not be felt during twenty-four hours, but it returned after the operation of a purgative bolus.

Soon after he retired to the country, where he has continued in good health.

*An uncommon convulsion of the trunk of the body cured; by Mr. THOMAS ARNOT, surgeon in Cowpar. Vol. V. art. 61.*

A Boy, eight years old, had been attacked at times for six weeks with a violent pain in his belly: when it seized him, the abdominal muscles of the right side were strongly contracted, and soon after he was thrown from his seat a yard forward on the floor; his body was violently bent, his arms and legs contracted, but neither his hands or fingers. He became insensible, but did not foam at the mouth, or void urine or fæces. When the fit was over, his senses returned, and he complained of being feeble, and all over pained. These convulsions attacked him every quarter of an hour in the day-time, but he was free of them in the night.

I gave him a vomit of ipecacuanha, applied a blister on his shoulders, and directed the following medicines.

Rx. Rad. pæon. drach. sex, Hellebor. nigr. Jalap. ana drach. tres, Valerian. silv. unc. unam, Casamunair. drach. unam; Cort. cinnam. scr. duos; Fol. senn. drach. sex, Rut. Rorismar. Flor. Lavend. ana M. unum, Sem. anis. Carv. Fœnicul. d. ana drach. duas. M. incis. & contus. affund. vin. alb. lib. unam cum semisse, Sp. lavend. comp. dr. unam. Aq. pæon. comp. Rutæ, ana dr. duas, M. post biduum coletur.

Rx. Gum. galban. Asafœtid. Diagrid. Mercur. dulc. ana scr. unum, Castor. Aloes socotrin. ana dr. sem. Sal. succin. gr. decem, Ol. anisi gut. octo, Balsam. Peruv. q. s. ut fiant pilul. viginti quatuor.

Twice a week he took the pills at bed-time, and next morning swallowed two spoonfuls of the infusion when he awaked, and as much at eleven o'clock in the forenoon: at night, after the operation of the physick, he took a spoonful of the following mixture:

Rx. Aq. Pæon. Theriac. Sp. lavend. compt. ana unc. unam, Aq. rut. unc. duas, Cinnam. fort. Ceras. nigr. Tinct. castor. ana unc. sem. Syrup. ex extract. papav. alb. unc. quatuor. M.

In the days free from the purgative, he took a dose thrice a day of the following powders:

Rx. Myrrh. Castor. Succin. alb. ppt. C.C.C. Coralin. Cinnab. nativ. ana dr. unam, Mercur. alkaliz. Sacchar. crystal. alb. pulv. rad. pæon, ana drach. duas. Valerian. silv. dr. tres, Ol. Anisi gut. decem M. fiat pulv. cujus sint scr. duo pro dosi.

After he had taken these medicines some days with little benefit, I applied the following plaster to his belly:

Rx. Empl. hysterick. Diachyl. cum gumm. ana unc. sem. Oxycroc. Gum asafœtid. Terebinth. venet. a. dr. duas. Extract. papav. alb. unc. sem. Ol. succin. Caryoph. ana gut. decem, pulv. sem. Cymin. dr. duas. M. extend. ad alutam.

This had not been applied two days, when his fits went quite off, except that one of them came for three days exactly at five o'clock in the evening; after which, for six days, he had only a yawning at that hour, which

which gradually decreased ; till after the use of the medicines a few weeks, he was altogether free, and soon recovered his flesh and strength, which had been greatly impaired by the disease, of which he has had no return.

I cannot help thinking that the extract of poppies in the plaster, contributed greatly to the cure, by at least giving a truce from the disease, till the other medicines had time to rectify the disorder in the nerves.

*An account of the most remarkable discoveries and improvements in physic, made or proposed, from the beginning of the year 1731, to the end of the year 1735.*

M R. W. Houston has accurately described the plant of which the contrayerva is the root, under the name of dorstenia, dentariæ radice, sphondylii folio, of which there are two kinds, one placenta ovali, the other placenta quadrangulari, and undulata (a).

Mr. de Jussieu assures us, from his experience, of the successful effects in dysenteries, of a thick yellow bark of an astringent bitterish taste, brought first into Europe from America in 1713, called there simarouba, and resembling the macer of the ancients. He has observed, that this medicine was more successful in decoction than substance. The dose was the third part of a quart of the decoction, which had two drams of the bark in it (b).

Dr. Stahl recommends the erysimum, or verbena foemina, for schirrho-cancrrous tumors, both when taken internally, and applied to the tumor. Mr. Bingert communicates two histories of its good effects (c).

(a) Phil. Trans. N° 421. § 2. (b) Mem. de l'acad. des sciences, 1729. (c) Act. Med. Berol. dec. 3. v. 1. p. 59.

Morgagni confirms, by several experiments, what Burlet had affirmed, of lime-water not coagulating milk (a).

The powder of the fungus *thyphoides coccineus Melitensis*, is recommended as a good and safe styptic in haemorrhages (b).

Le Dran mentions several examples of his success in curing white swellings of the joints, or tumors from inspissated lymph, by a small stream of warm-water falling from a height on them. When the water is impregnated with penetrating medicines, or natural minerals, its virtues are greater. He also recommends the application of bladders, containing warm-water, to the parts affected with such diseases (c).

Mr. Baillefon affirms, that a composition of sulphur, rosin, and honey, proves an escharotic, with little or no pain (d).

An accident of two women dying suddenly in Dublin, after drinking some of the common distilled laurel-water, gave rise to several experiments on dogs, with the distilled water, and with the infusion of the leaves of this lauro-cerasus, communicated by Dr. Madden, and afterwards confirmed by Dr. Mortimer; by which it appeared, that both the water and infusion brought on convulsions, palsy, and death, when taken by the mouth or anus (e).

Dr. Gaubius shewed a great variety of experiments on milk, and prepared its salt by boiling whey (*serum lactis*) to one half, then filtrating it; he continued the coction and filtration, till it became of the consistence of a syrup, when it was put into a cellar to crystallize, and there the salt formed into a cake of a saccharine taste, and resembling manna (f).

(a) De Bonon. art. & scient. institut. & acad. com. p. 155. (b) Ib. p. 158. (c) Le Dran obs. chirurg. tom. II. obs. 93, 94. (d) Ibid. obs. 100. (e) Phil. Trans N° 418. § 7. & N° 420. § 3. (f) This preparation is somewhat different from that which Valentini (medicina nov. antiqu.) alledges to be the famous *saccharum lactis*, so much cried up by Ludovicus Testi (in epistol.) the first preparer of it, and recommended by others as an infallible cure of the gout.

Dr. Christ. Jac. Trew prefers the rectified spirit of grain for preserving anatomical preparations in, to spirit of wine, or compositions of alcohol, amber, camphor, &c. because these, he says, soon change into a brown colour; whereas the spirit from malt preserves its limpid appearance. When any part is designed to be preserved wet, he recommends the washing of it with water, till the water is no more tinctured: the water is next to be washed away with spirits; and then the preparation is to be put among the spirits in the glass, where it is to be kept, the mouth of which is to be very close covered with a glass head, over which a wet bladder and leaf-tin are tied (a).

The vessels of the crystalline humor of the eye, said to have been discovered by Dr. Albinus, are all the branches of an artery, which being sent off from the artery, which enters at the central part of the retina, passes through the vitreous humor, and when it reaches the crystalline, disperses its branches along the surface of that lens like radii, till they are exceedingly minute, when they pierce into its substance.

Dr. Albrecht is of opinion, that the bladder of a strong man may be divided into six coats, among which the muscular ought to be reckoned, because it consists of irregular separated bundles of fibres. He observed, that the part of a waxy injection coloured with cinnabar, which had made its way among the cellular membranes covering the coats of the vein, left the colouring powder behind it. After injecting wax into the left pulmonary vein, he remarked a vein filled with the injection, which run upon the outside of the pleura, to five inches distance from the vertebrae, and gave off branches to the neighbouring parts. By accounting for the phænomena of several diseases from this fact, he seems to think that there is always a communication between the pulmonary and thoracic vessels (b).

(a) Com. lit. Nor. 1731, semest. 1. specim. ix. (b) Albrecht,  
observ. anat. § 5, 8, 11.

Jo. Henr. Schulze, having observed wax passing, as he thinks, through the coats of the arteries and veins when these vessels were injected, of which that coloured with red lost its colour, while the green kept it; endeavours thence to account for the secretion of fat, and the production of an œdema (a).

Mr. Senac has given a new description of the structure of the diaphragm, with remarks on the action of this muscle; and Mr. Hunaud has given observations on the structure and actions of some muscles of the fingers; and Mr. Winslow an account of rotation, pronation, and other circulatory motions (b).

Morgagni has never yet fulfilled his promise of publishing Valsalva's posthumous works; but by his papers now published, we may judge what discoveries Valsalva is to treat of. His first dissertation is to be on the ligaments of the colon, which other authors, and particularly Morgagni, have prevented him in. Next he treats of the sinuses of the aorta. By sinus he means any part of an artery, where its sides are stretched out beyond the ordinary proportional dimensions elsewhere. He observes four such sinuses, three of them answer to the semilunar valves, and the fourth is all that part of the aorta between the former sinuses, and the origin of the common trunk of the right subclavian and carotid arteries. He then gives some reasons to prove, that the nervus accessorius arises from the eighth pair, to be joined to the medulla spinalis. Valsalva calls that ring which the muscles of the eye make round the optic nerve, at the bottom of the orbit, by the name of the moderator ring of that nerve, alledging, that the exterior fibres of these muscles, which rise from the nerve, must shorten it when they contract; and when the interior fibres act, they must compress it: so that these different fibres of the muscles affect the nervous fluid here very differently. He also describes such another ring made round the motory nerves of the eye,

(a) Com. lit. Nor. 1731, semest: 1. specim. v.

(b) Mem. de l'acad. des sciences, 1729.

but acknowledges that it is neither so remarkable or distinct as the former. In the last treatise, Valsalva endeavours to prove the *renes succenturiati*, or glandulae renales, to be organs of generation, or assistant to them. Valsalva claimed this discovery. Mr. Ranby suspected that the duct which the Italian journals mentioned, as the principal part of this discovery, was no other than an artery sent off from that of the capsula on each side, to the testicles of men, and ovaria of women (a). Morgagni has now explained Valsalva's doctrine more fully. Valsalva gives the following reasons for his opinion. He observes the seminary vessels of several fowls to come out from these capsulae, before they are sent from the testicles. In the viper and water-tortoise, he remarks such membranous connections between the *renes succenturiati* and testicles, as make it probable that such excretaries are sent thro' the capsulae to the testicles. He affirms his having seen vessels which were neither nervous, sanguiferous, or lymphatic, going from the human capsulae to the testicles. His observations are much the same as to females. To these he subjoins the consent and sympathy observed between the loins and the genital parts. To confirm all, he cut away one testicle, and extirpated the kidney of the opposite side, of a whelp. The wounds healed, but the creature was of a very lax habit, and so far from attempting coition with bitches, that he did not seem fond of them when they were proud (b).

Petrus Nannius, after giving some examples of vesicular bodies found in the conglomerate glands, which, he thinks, support the Malpighian scheme of glands, endeavours to prove the necessity of such vesicles for receiving all the different particles required in the composition of secreted liquors, which must be conveyed in different series of vessels, to be intimately blended in the vesicle, which will be considerably

(a) See Phil. Trans. N° 387. § 3. and N° 395. § 12. We beg Mr. Ranby would determine whether the artery he describes is constantly or seldom found.

(b) Acad. Bononiens. Comment.

p. 376, &c.

assisted by the systole and diastole, which he supposes the vesicles to undergo (a).

Dominic Gusman Galeatus, having found small black biliary concretions contained in follicles of the coats of the gall-bladder, concludes Malpighius's opinion of the glands of the gall-bladder to be thereby confirmed (b).

Mr. Monro has made many additions to his osteology and treatise of the nerves, in a new addition.

Mr. Winslow (c) has mended every where the common descriptions, and added innumerable particulars, not mentioned before him. We recommend this author to all who wish to have a very particular and genuine knowledge of the structure of the human body. He is indeed very short, and reserved in explaining the functions and uses of the parts, except in his treatise on the muscles, where he shows prodigious varieties in the actions of these organs of motion, which never were so much as hinted before.

Dr. Bryan Robinson (d) has endeavoured to improve on Sir Isaac Newton's opinions concerning several parts of the animal œconomy, and supports his reasoning by experiments and geometrical calculations. He shows first, the laws which obtain in the motion of fluids through cylindrical pipes, which serve as an introduction to an account of the motion of blood in the vessels. Next he argues for "muscular motion being performed by the vibrations of an elastic æther lodged in the nerves and membranes, investing the fibres of the muscles, excited by the power of the will, heat, wounds, the subtle and active particles of bodies, and other causes." His third subject is respiration; in which he contends that, "the life of animals is preserved by acid parts of the air mixing with the blood in the lungs; which parts dissolve or attenuate the blood, and preserve its heat, and by both these keep up the motion of the heart." In the following section,

(a) Acad. Bononiens. Comment. p. 336. (b) Ibid. p. 352.

(c) Exposit. anatom. de la structure du corps humain. (d) Treatise of the animal œconomy.

he argues for digestion, being owing to gentle heat and motion: “ By this heat and motion, the texture of the nourishment is changed in the bodies of animals.” And then, “ the constituent solid parts are endued with peculiar attractive powers of certain magnitudes, by which they draw out of the fluids, moving through them like parts in certain quantities, and thereby preserve their forms and just magnitudes.” Secretions are performed thus: “ The glands are endued with peculiar attractive powers, by which they suck in various juices from the blood.” In the last place, he shows the proportion of the discharges of human bodies, viz. of perspiration, &c.

Mr. Winslow has proposed an improvement on the manner of reducing inguinal or crural herniæ, namely, to cause the patient to rest on his knees and elbows, while the surgeon is attempting to reduce the bowels. (a)

Mr Cheselden has improved the lateral operation for the stone. Instead of pressing his catheter backwards, he causes it to be supported as close to the conjunction of the ossa pubis as possible; and having made a large incision into the teguments, presses the gut backwards with the fore-finger of the left hand; and having felt the furrow of the catheter with this finger, introduces his knife with the edge directed forwards and downwards upon the finger into the furrow, immediately above the superior part of the prostata; and with the knife, in the same situation, he cuts a small share of the side of the bladder, its sphincter, the side of the prostata, the ligament thro' which the small beginning of the urethra passes, and the bulbous part of the urethra. After this incision, the gorgorét is introduced upon the fore-finger, which is kept in the wound all this time. The forceps is soon introduced, and the stone as quickly extracted (b).

(a) *Le Dran observat. chirurgic. tom. II. obs. 1. and Journal des Scavans, Mai, 1732.* (b) *Douglas's appendix to the history of the lateral operation.*

Mr. Garengot has much enlarged his treatise of chirurgical operations: the most considerable improvements in the practical way added, are (a), old age is an advantage in performing the operations for herniæ, because old peoples guts are not so liable to inflame or gangrene as those of young persons (b). He recommends exercise to hydroptic people immediately before tapping, that the grosser particles in the water of their belly may be mixed with the thinner, and so run out with them. And if there is reason to suspect any such gross parts remaining after the operation, he advises the injection of barley-water, to dilute and bring them away. (c) He describes a new way of performing the operation for the fistula in ano; having thrust a probe through the gut a little higher than the bottom of the sinus, and drawn out that end by the anus, with the finger introduced into the gut, he makes an incision parallel to the probe, at an inch distance from it on each side, and cuts out all between the incisions. A new method of tying a wounded intercostal artery, the invention of Mr. Goulard, is described (d); the instrument employ'd, is a semicircular, or very curve needle, which has a groove along its convex part, and two holes at some distance from each other, near the point, piercing from the convex to the concave side: this needle is fixed into a long streight handle, and a thread is put through the two holes, in such a manner, that its noose is on the concave side, and the two ends on the convex, in the groove of which they are hid and brought down to the handle. When the groove is thus mounted, an incision is made cross three ribs, that where the wounded artery is, being the middlemost; when these are discovered, the needle is thrust thro' the muscles contiguous to the upper edge of the middlemost rib, and about an inch farther back than the open orifice of the artery, and is pushed within the internal surface of the ribs downwards, and made to pierce outwards immediately below the under edge of the rib: as soon as the noose of the thread appears

(a) Tom. I. p. 298. (b) P. 408.

(d) P. 431.

(c) Tom. II. p. 354.

without,

without, it is to be raised with a pin, and the end of the thread drawn out; then the needle being drawn back again, brings out the other end with it; the thread, being now round the rib, is to be tied firmly on it. He is of opinion, that in (a) using the trepan, it is better to rest the chin in a ring, made with the fingers, than to rest the forehead on the back of the hand. That it is inconvenient to press on the back of the knife, in making the incision round a limb; and that it is better to use La Peironyer's hook, at the point of the knife, into which a finger is put for directing the knife; or else to take hold of the knife near its point with the thumb and fingers of the left hand. (b) He thinks soft compression is more effectual to stop haemorrhages, than hard substances, and (c) condemns the use of vitriol buttons, even when stitches of arteries give way, and would rather trust to soft compression. (d) He advises the amputation of the fore-part of the foot, when there is occasion; in doing which, the knowledge of the articulations there only can guide the operator.

Mr. Lamorier proposes to abridge the operation of the fistula lacrymalis, and to secure a passage for the tears into the nose; the os unguis is to be laid bare at the first incision, and pierced with a pair of strong sharp-pointed crooked forceps, and then the perforation dilated by opening the forceps. After the inflammation is over, a piece of small wax-candle, shaped like a tent, is to be introduced by the wound into the nose, and secured by the other dressings. He continues the use of this bougie till the passage is made callous, and out of hazard of re-uniting; after which he allows the external wound to cure (e).

Mr. Le Dran has mentioned several improvements in surgery in his observations. He cured a polypus of the nose, which he could not extract wholly, in the following manner, which may be practised for destroying all such excrescences. He introduced one

(a) Tom. III. p. 187. (b) P. 423. (c) P. 391. (d) P. 414.  
(e) Mémoire envoyé du Montpellier à l'Academie des sciences, 1729.

end of a large seton, put on the point of the forefinger of the left hand, into the patients mouth, till he brought it behind the velum pendulum ; then sliding a pair of thin crooked forceps into the affected nostril, he catched hold of the seton, and brought it out at the nostril, leaving its other extremity hanging out at the mouth. Every day he shifted the seton, after covering what was to be introduced into the nose, with a suppurant medicine. While he drew the cord, he endeavoured to perserve the velum pendulum from being hurt, by introducing his finger into the mouth, and supporting the cord upon it. He continued the suppurant till he was sensible, by the patients breathing freely through the nostril, that the remains of the polypus was destroyed, and then he injected desiccatives to cicatrize the ulcer (a). He proposes to make such a seton serve for stopping hæmorrhagies of the nose ; for which purpose he fastens two dossils to the cord, and after drawing one out at the nostril, to bring away the clotted blood, he continues to draw the cord, and so fills up the posterior part of the nostril with the other, which ought to be larger, and well wet in a styptic liquor ; by which not only the hæmorrhagy will be stopp'd, but if it should continue, the blood and medicines will be effectually prevented from running down the throat, which commonly occasion a cough or vomiting, which increases the bleeding. He confirms his reasoning by an example of the success of this method. In his observations on wounds of the head, he shews how much more dangerous the case is, when the cranium does not break by violent blows, &c. than when it is fractured, because of the greater commotion of the brain, &c. and therefore concludes it necessary to perform the operation of the trepan oftner than is commonly practised.

He remarks (b), that whenever any considerable quantity of pus is contained in either cavity of the thorax, that side will appear larger than the other. (c) He describes a bistoury cachè for more safely per-

(a) Tom. I. obs. 6. (b) Reflect. on observ. 31. (c) Tom. II. obs. 59.  
forming

forming the operation for herniæ. The point of the bistoury slides in the furrow of the director, while the edge of the blade is raised, and a broad plate stands out on each side of the director, to keep down the guts, and thereby prevent their being cut (a). He assures us, that when a small stone is lodged in the neck of the bladder, the patient only is pained in pissing till the first drops of the urine come away : when the stone is large, his greatest pain is while the last drops are evacuated ; but when the difficulty of urining depends on the diseases of the coats of the bladder, the pain continues all the time of the evacuation. By observing these symptoms, he has declared people to have no stone in the bladder, after several others had assured them there was a stone ; and his opinion was confirmed by probing with the catheter. He names one instance of this, in a person who had laboured under what he calls a contracted hardened bladder, whom he cured after several bleedings and purges, by injecting into the bladder a decoction of marsh-mallow-roots and linseed, which he changed afterwards for barley-water, with some honey of roses : by these he removed the pain, and brought the bladder, which could scarce contain at first two spoonfuls of liquor, to the ordinary capacity. He describes (b) the amputation of the metatarsal bone of the great toe. He cut with a bistoury between the affected bone, and one next to it, till his knife passed beyond the carious part, and even beyond the swelling of the teguments ; then introducing a furrowed probe between the bones, near the posterior extremity of the incision, he pushed his bistoury, by the help of it, some way between the bones, and made a semicircular incision upon the metatarsal bone of the great toe, first above, and then below, so as to lay that bone bare all round ; and taking out the probe, he introduced a thin plate of lead in its place, and, with a fine saw, cut the bone through, the next one being saved from any injury by the lead.

(a) Obs. 80. (b) Observ. 212.

Morgagni tells us, that Valsalva shows, by several reasons and examples, the cataract to be a disease of the crystalline humor, and not a membrane. The principal difference, according to him, between a cataract and glaucoma, is, that in the latter the crystalline humor becomes hard, and of a sky-colour (*glauci coloris*;) and in the former it is soft (a).

The Chinese seem to have had the method of inoculating the small-pox long before it was introduced into this part of Europe: their method of proceeding is this; they gather the scabs which come off from an healthy child who has had the small-pox in a favourable way, and keep them well shut up in a china-cup till there is occasion for them; then taking four small ones, or two large ones, and putting a grain of musk between them, they roll them in a little cotton, and thrust this tent into the child's nose, where it remains till the symptoms of infection begin to appear. The child is to be more than a year old. If the pustules appear on the first day of the fever, the child almost certainly dies; if on the second, the event is uncertain; if they do not show themselves till the third day, the patient probably will recover (b).

Dr. Stevens (c) endeavours to prove the gouty humors to be rather of an alkaline than acid nature.

Dr. Cajetanus Tacconus tried many experiments with the mucilage of the joints of brutes, and of men both found and gouty, in order to discover whether the gouty matter is acid or alkaline, and concludes, that its matter is sometimes of the one, and sometimes of the other nature. If the gout produces no tophi or knots, or does it very slowly; and especially if it is attended with œdematos swellings, he pronounces it to depend on an alkaline humor; but if the knots are large and quickly formed, it is owing to an acid.

(a) *Comment. acad. Bonon.* p. 377. (b) *Lettres edifiantes & curieuses ccrites des missions étrangères par quelques missionnaires de la compagnie de Jésu*, tom. 20. Paris 1731. (c) *Essay on aliments prefixed to his translation of Dolens on the gout.*

An anonymous author minutely describes a colic which generally prevails in Amsterdam during the winter, and destroyed many of the inhabitants in 1730. Its appearance is very like to what was formerly called the colic of Poictou. The principal distinguishing marks of it are its obstinacy, and bringing on convulsions, palsies, and other disorders, commonly called nervous. The author argues against the different opinions concerning the nature of this disease, and endeavours to prove it to depend on a gouty humour (a).

Dr. Lobb (b) disapproves entirely of blood-letting in the small-pox; and thinks the disease may be prevented, or cured, without any eruption, and that a specific may be found: He proposes the æthiops mineral as such, and relates some examples of the disease being in his judgment prevented by the timely use of it.

Dr. Loeber (c) recommends repeated and plentiful bleeding, and the greatest care to follow out the antiphlogistic method.

Dr. Albertinus observes, that all feverish, nay, almost all diseases, are followed by crises; and that particularly after intermitting fevers are stopp'd by the bark, critical evacuations are to be expected: if they do not come timely, the patient is in danger of some other disease, especially if any usual evacuation has been hindred; in which case it is dangerous to give the bark, unles we promote a suitable excretion, if a crisis does not soon come naturally (d).

*For the Year 1732.*

DR. Hahn (e) endeavours to prove, that the small-pox was described by the old Greek physicians under the name of carbuncle. In the epistle to Fabricius, tacked to his variolarum antiquitates, he uses many arguments to shew Janus Damascenus and Mesue the Syrian, to be the same person.

(a) Biblio h. taitonnée de l'Europe, tom. VIII. art. 2. (b) Treatise on the small-pox. (c) Sure rules to a successful cure of the small-pox. (d) Comment acad. Bonon. p. 425. (e) Variolarum antiquitates e Græcis eruta.

The Peruvian bark is discovered to be effectual in the cure of mortifications from an internal cause. The history of this discovery is; In 1715, Mr. Rushworth, surgeon in Northampton, gave it to a patient labouring under a mortification; and having afterwards other proofs of its good effects in this disease, communicated his discovery in 1731. Mr. Amyand soon tried it in such cases, and found it successful in seven. Mr. John Douglas confirms it by the history of a patient of his, which he published in 1732. And Mr. Shipton, surgeon, soon after relates his success by this medicine, to the Royal Society in London. Mr. Rushworth and Mr. Amyand confine its use to mortifications from an internal cause: the former thinks it is not proper in all cases of that kind, particularly where there is no intermission of the fever. Mr. Douglas seems to think it will succeed in all mortifications. All these three gentlemen gave half a dram for a dose every fourth hour. Mr. Shipton increased the dose to two scruples, and gave it while the fever continued. He proposes to have it tried in nomæ, phagedenæ, herpes, or other chironian ulcers (a).

Jo. Ge. Henr. Kramerus assures us we may depend on the same effect in the cure of a dysentery, from the decoction of common millet seed, called St. Ambrose's syrup, as is promised from the simarouba by Mr. Jussieu (b).

Dr. Dovar, in his physician's legacy to his country, having recommended quicksilver as a most beneficial medicine for several diseases, it had a great run last winter at London, which occasioned the writing a great many pamphlets for and against it.

Mr. Boulduc describes an easy manner of making corrosive sublimate. He pours equal quantities of quicksilver and dephlegmated oil of vitriol into a retort, then draws off part of the acid, which does not

(a) See Mr. Rushworth's letter; Mr. Douglas's account of mortifications, and Phil. Transf. N° 405, § 5. (b) Commerc. lit. Norimb. 1733. hebdom. 6. § 5.

incorporate with the quicksilver: the fire is continued till the white mass of dissolved mercury is dry, when he speedily mixes it with equal parts of dried sea-salt, and sublimes it in the common way (a).

Mr. Le Fevre proposes an easy way of making colcothar of vitriol: he mixes two parts of filings of iron with one of sulphur, and a little water. After the acid of the sulphur has dissolved the iron, he exposes the paste to the air, and it changes into colcothar (b).

Mr. Petit, the physician's observations and experiments on the colour, consistence, measure, weight, &c. of the crystalline humor of the eye, and its capsula in different animals, are so minute and numerous, that we can only take notice of some of them. He shews the crystalline to consist of concentrical laminæ: he always found the capsula transparent, and denies any connexion between this membrane and the crystalline, or that there are any vessels going from the one to the other; but affirms that the crystalline is nourished by absorbing the lymph lodged between it and its capsula (c).

Mr. Winslow's remarks on the motions of the head, neck, and spine, and Mr. Hunauld's observations on the bones of the human skull, are very particular (d).

Dr. Waltherus has given a minute description of the muscles and ligaments in the sole of the foot (e).

Several anatomists, particularly Heister and Palfyn, having of late disputed whether Steno's duct, between the nose and mouth, is pervious in the recent subject, as well as in the skeleton, Dr. Kulm affirms, that he had demonstrated it to several, to be pervious in a deer, bear, wild goats, hares, calves, and in the human subject, and then mentions the manner of tracing it. There is a double opening of this duct into the mouth at the papilla, immediately behind the dentes incisores, out of which orifices a liquor bubbles, when the palate is pressed with the fingers from

(a) Mem. de l'acad. des sciences, 1730. (b) Hist. de l'acad. des sciences, 1730. (c) Ibid. (d) Ibid. (e) Nov. aet. erudit. Lips. April 1732.

behind forwards, by which one is directed to introduce a hog's bristle into these canals ; and by pushing the bristle first perpendicularly, and then a little backward, it very easily passes into the nose. Besides, the place of these ducts in the nose may be readily distinguished by its greater declivity (a).

Dr. Pozzi (b) endeavours to prove, that the nails grow out from the tendons, which are spread upon the last phalanx of the fingers and toes. He says (c), that the thymus of a calf softened by maceration, discovers a lobe, from which a milky liquor runs out when it is wounded ; and if air is afterwards blown into it, the whole thymus is distended, and may be dried, when it plainly appears to be composed of cells communicating with each other ; upon the sides of which muscular fibres are to be seen : from which structure he concludes, that the thymus in fetuses supplies the use of the lungs, serving as a receptacle for the chyle to be prepared in. He (d) relates the phænomena he remarked in dissecting a dog, whose spleen was cut out when he was young. The liver, which was larger and more heavy than ordinary, was also more brittle ; the vena portarum was enlarged ; the gall-bladder was full of bile more acrid than it is commonly. From these appearances he thinks the use of the spleen to be for separating a liquor like to spittle, which may dilute the bile, and prevent its too great acrimony.

Dr. Stuart, having cut off the head of a frog, observed, that upon thrusting a probe into the medulla spinalis, the muscles of the body were brought into convulsive contractions ; and that the same happened to the muscles of the head, when the probe was thrust into the brain. From which he concludes, that the brain and nerves contribute to muscular motion in a high degree. Next he laid bare the crural artery, vein, and nerve of a dog, and, placing a thread parallel to them, made two ligatures on them, at four

(a) Tabul. anat. xi. (b) Commentariolum tacked to his orations, p. 55. (c) Ibid. p. 58. (d) Ibid. p. 72.

inches distance from each other; then cutting the vessels through beyond the ligatures, he took them out, and observed that the nerve did not contract, though the blood-vessels lost three eighth parts of their length: from whence he infers, that what the nerves contribute in muscular motion, cannot arise from, or be owing to elasticity, but to the fluid they contain, which can be no other than a pure elementary water (a).

An anonymous physician offers what he calls an experimentum crucis, in proof of the nerves being composed of cylindrical canals containing a fluid: it is the demonstration of the optic nerve inflated and dried, which appears canular to the naked eye (b).

Mr. Browne Langrish (c) endeavours to prove that the blood has no immediate effect in muscular motion, by experiments of tying the crural and carotid arteries of dogs, who did not thereby lose the action of any muscles. He grants, however, that when all the blood is intercepted, muscular motion ceases in a few minutes. The chief use of the blood towards muscular motion, is to keep the fibres warm, supple, distended, and ready for the influx of animal spirits into them, and by its motion to assist theirs. The muscular fibres are little hollow cylinders, not divided into cells; the animal spirits are near akin, or analogous to spirit of sal ammoniac, &c. and therefore, whenever they fly from the nerves into the muscular fibres, they will increase the attractive quality of their component particles towards each other, so as to make them run nearer together, which will occasion the coats of the fibres to be both thicker and shorter, and the muscle will be contracted in all its dimensions. The animal spirits are too subtle to be fixed, and consequently immediately make their escape through the fibres, and leave them in the same state they found them in, as soon as the supply by the

(a) Philos. Trans. N° 424. § 5.  
public of letters, vol. XII. art. 16.

(b) Present state of the re-  
(c) In his essay on muscular motion.

nerves is discontinued. There is a difference in the mechanism of the nerves sent to the muscles, which act by the influence of the mind, from those of the muscles which are said to perform involuntary motions, the latter having no hindrance to the course of the animal spirits, unless sometimes the parts through which they pass have influence on them ; whereas the nerves, which serve the muscles of voluntary motion, have some little constrictions at their extremities, or elsewhere, which hinders the course of their fluids, except when their resistance is overcome by the momentum of the spirits being increased by the will. The use of the ganglions is to prevent any communication of motion from one nerve to another, whereby, in a state of health, sensation is always performed distinctly.

Mr. Mery (a) attempted to establish the doctrine of air being mixed with the blood in the pulmonary vein, and being again discharged into the branches of the trachea by the small branches of the pulmonary artery. His principal argument was, that air blown into the trachea, passed by the pulmonary veins into the heart ; and that by blowing air into the pulmonary artery, it could be forced into the trachea. Mr. Bulffinger observed, from experiments, that water thrown in at the trachea, ran out at both the pulmonary artery and vein, which neither milk nor air would do. Water injected into the pulmonary artery, passed into the trachea and pulmonary vein, which air also did : water injected into the pulmonary vein, was pushed with difficulty, but at last ran into the trachea, and not into the pulmonary vein. Hence he concludes Mr. Mery's experiment, and consequently his system, to be false (b).

Mr. Hales has, in his second volume of statical essays, more fully treated of the force wherewith the blood is propelled from the heart into the arteries, than in his first. He observes, " That the force of

(a) Mémoires de l'acad. des sciences, pour l'année 1700 & 1707.

(b) Comment. acad. scient. Imperial. Petropolit. tom. III. p. 236.

" the blood in the veins and arteries, is very different,  
" not only in animals of different species, but also in  
" animals of the same kind, and even in the same  
" animal, according to its different circumstances :  
" from whence many observations are necessary to  
" find out nearly a medium of those forces." He has  
furnished us with several curious experiments, which  
may be of considerable use in carrying on, to the de-  
sired perfection, an hydraulic view of the animal  
body. In the mean time he concludes, from his own  
observations, that the quantities of blood passing  
through the hearts of different animals in a given  
time, and the forces of the blood in the vessels, are  
not proportioned in any regular way to their sizes.  
We shall only give the substance of a few of the car-  
dinal observations. The force which the left ventri-  
cle of the heart suffers, or wherewith it squeezes the  
blood in the beginning of its contraction, is one hun-  
dred and thirteen pounds in a mare, whose arterial  
blood rose to one hundred and fourteen inches in a glass  
tube, fixed into the carotid artery. In a dog, whose  
blood rose eighty inches high, the force of the ven-  
tricle was thirty-three pounds and an half. In a man  
of a middle constitution, the blood would rise ninety  
inches, and the compressive force of the heart would  
be fifty-one pounds and an half. " To the great re-  
" sistance the blood meets with in passing through  
" the small arteries, is owing the great difference be-  
" tween the force of the blood in the arteries, and  
" that in the veins, viz. as ten or twelve to one." The  
celerity of the blood is greater in the lungs than  
in other parts of the body : the parts of the body  
through which there is a free circulation, are about  
thirty times heavier than the lungs, and a quantity of  
blood equal to twenty-eight times the capacity of the  
pulmonary vessels passes through them in a minute ;  
which calculations are strengthened by microscopical  
observations (*if the computation was just*) of the celerity  
of the blood in the small arteries of the lungs of a frog,  
which is forty-three times greater than in equal arte-  
ries

ries of the muscles. The lungs may be dilated by pouring in blood into the pulmonary artery of lungs taken out of the body ; and in a living dog the lungs are distended after a large incision is made in the cavity of the thorax : hence the natural dilatation of the lungs in living animals, is owing partly to the blood forcibly propelled into them by the pulmonary arteries.

From the diminution of the elasticity of the air by the breath of animals, he shews the ill consequences of crowding many people together, as in jails, &c. and observes of what great benefit it would be to contrive those places in such a manner, as that they might have constantly new recruits of fresh air ; a precaution which Ramazzini recommended to be used in the dormitories of convents. Mr. Hales had reckoned the quantity of moisture expired by the lungs in a day, to be about six ounces and an half ; almost the same Sanctorius reckoned from the drops collected on a glass : but Dr. Lister thought it too small an allowance by much. Now Mr. Hales, by making his breath pass through dry ashes, found the expired moisture to be at the rate of 979 $\frac{2}{3}$  grains, or  $\frac{979^2}{438} = 22\frac{1}{3}$  ounces, or 439 pounds ayerdupois, which falls in pretty nearly with Dr. Thurston's conjecture, when he supposed the quantity expired by the lungs, to be equal to the perspiration from all the rest of the body. Because in the common method of injecting the animal vessels with a syringe, one cannot be assured with what force the injected liquors are impelled ; our author thought of a way of doing it, by the weight of a superincumbent column of the injected liquor, which should be constantly uniform, and nearly equal to the force of the arterial blood. And, on this occasion, he makes public Mr. Ranby's injecting matter, which consists of white rosin and tallow, of each two parts, eight parts of turpentine varnish, and three parts of the tinging powder, as vermillion or indigo, all duly mixed and prepared. From his injections and microscopical observations, he alledges, that the very minute extreme arteries arise all at right angles from their

their respective trunks, and do not form any network or inosculations with each other, as he allows the larger capillaries to do, and that they are mostly inserted at right angles into large venous trunks.

From a careful observation of the appearance of common flesh, Dr. Lower reckoned the contraction of a muscle to be owing to the cris�ation of its fibres. This receives some confirmation from an observation of Mr. Hales's upon the action of the muscles in a frog, whose parallel fibres in contraction changed into rhomboidal pinnulæ. He gives us some new and curious experiments of the strength of the arteries, veins, periosteum, and ligaments; he estimates the pressure of the stomach on the aliments, to be about twenty pounds. On transfusing warm-water into a dog, he died, and had an universal dropsy from the ouzing of the watery parts of the too thin-diluted blood, through the small orifices which are not large enough to admit the red particles. Lower had formerly found the same effect from making ligatures upon the veins.

As Dr. Keil had observed, how some people are subject to head-achs and flushings of the face after dinner, from the distension of the stomach; in like manner Mr. Hales remarks, that the flatulent are often subject to a short swimming or vertigo, from the wind distending the gullet, and so pressing on the descending aorta, whereby the blood is too forcibly driven to the superior parts. Our author, by injecting various liquors, shewed their great powers of relaxing or straitening the vessels. Heat and warm-water were found to relax them. The astringents he tried were cold-water, spirit of wine, decoctions of Peruvian bark, of oak bark, of camomile flowers, of cinnamon and Pyrmont water.

From the large quantity of air which he found in the human calculus, he was in hopes to have found some menstruum for it; at length he found one. It is a solution in water of the strongest alkali, and the strongest acid, just in the act of effervescence, to wit,

salt

salt of tartar and oil of vitriol. That the effect of any menstruum injected into the bladder for dissolving the calculus, may not be prevented by the mixture of too much urine, he proposes to make a continual flow of liquors into, and out of the bladder, during the injection, by using a catheter, the cavity of which is divided into two channels, which end in two diverging branches: by one of these he injects the menstruum, while it returns by the other. Onions have a greater dissolving power of the gravel, than some other hot alcalefcent plants, as scurvy-grass or horse-radish. The gravel more readily attacks those of a hot constitution, and women, because in the former the urine is more highly alcalified, attenuated, and digested. The more attenuated and digested aliments are most liable to breed calculous concretions. Probably stones increase most in the hot seafons, otherwise than what Aretæus (a) reckoned. For better preventing the gravel, he proposes lying in a reclined posture, with the head considerably higher than the feet, whereby the urine is not detained so long in the kidneys, as to allow its tartarous parts to attract each other. He describes a forceps for extracting a stone contained in the urethra, which Mr. Ranby and others have used with good success. It is composed of a small canula, and a pair of spring forceps.

Dr. J. Ad. Kulm, observing the difficulties which attend the distension of the bladder, with a liquor, in performing the high operation, especially in women, has contrived an elevatory catheter of the bladder for that sex. The bending of it is fitted to the turn of the os pubis, and its great curve, instead of being only furrowed, is pierced quite through. He introduces this, with its convexity to one side, then gently raises it to the hypogastrium, and cuts securely upon it (b).

Saltzmannus relates an instance of a luxation of the thigh-bone, without any fracture of its neck, and

(a) De chron. &c 11, 3.  
1732.

(b) Nov. act. erudit. Lips. Mart.

confirms what Ruyfch had observed of the epiphysis of the os femoris, being, as it were, annihilated, or at least changed so, as it could not be observed when sought after in one who had it broken (a).

Oliver St John gives the design in perspective of the arcuccio; an instrument to prevent the overlaying of children, which the nurses in Florence are obliged to lay the children in. It consists of a semi-circular piece of wood, or head-board, of one foot and an inch diameter; to each side of which, a board three foot two inches and an half long, is fastened. Each of these has a hollow on the upper edge, near to the head-board, for the nurse's breast to rest in when she gives suck, and a semicircular arch of iron is fixed to them near the other end. From the top of the head-board, to the middle of the iron arch, there is a bar of wood fixed, on which the nurse leans when she suckles the child. The arcutio, with the child in it, may be safely laid under the bedcloaths in the winter (b).

Dr. Wintringham's *commentarium nosologicum*, being principally a concise narration of facts, will not allow of an abridgment; but we cannot but refer our readers to the book itself, where they may see an industrious and accurate comparison of the changes of the air with epidemic diseases, accompanied with a very ingenious *aetiology*, modestly proposed. Among the many judicious reflexions this author makes on the cure of diseases, we shall only mention two, which relate to the small-pox. He never observed anti-phlogistic medicines, which open the belly, diluting clysters, or such like, to have any bad effect; but on the contrary, has always seen them serviceable to young, vigorous, plethoric patients; while too bound a belly frequently produces at last a dangerous diarrhoea. He proposes in urgent cases of the confluent small-pox, where the resorption of the variolous matter is in great danger of increasing the secondary

(a) *Comment. acad. Petropolit.* tom. III. p. 275.

(b) *Philosoph. Transact.* N° 422. § 6.

fever, that the pustules should all be opened, and treated as so many ulcers.

Dr. Hilscher (a) recommends the cutting off the hair in the small-pox, by which perspiration may be increased. This method was practised on the king of Spain's son Don Carlos, and on a Saxon prince, with success.

The urine of phthisical people, is said to be always specifically heavier than that of people in health, or in any other disease (b).

The same author who described the colic which prevailed in Amsterdam in 1730, has continued his dissertation on those colics, to shew the other causes besides the gout, on which they may depend; and, consequently, how differently they ought to be treated (c). In his last paper he mentions some curious observations made on sucking-rabbits, which were taken with vomiting, purging, and convulsions, in the stomachs of which he found the milk curdled and fetid.

Dr. Cockburn distinguishes fluxes into those from a stimulus, and those from a greater than ordinary secretion of a watery substance. In the watery flux, all the common methods of purging, vomiting, and astringents, are hurtful (d).

Dr. Dovar (e) proposes cures for diseases, which frequently are different from the ordinary practice. A gouty patient will be free of pain two or three hours at farthest, after taking a dose, which is from forty to seventy grains, of the following powder. Take salt-petre and tartar vitriolated, each four ounces; put them into a red hot mortar; stir them with a spoon till they have done flaming (f); then powder them very fine; and after that slice in an ounce of opium; grind these to powder; and afterwards mix with it an ounce of the powder of ipecacuanha, and as much of

(a) *Præludio de amputatione & rasura capillorum in variolis.*

(b) *Commerc. Norimberg. 1732, hebdom. 44.* (c) *Bibliothèque raisonnée des ouvrages des Savans de l'Europe, tom. IX. 1 & 2 parties.*

(d) *Phil. Trans. N° 425. § 3.* (e) *Ancient physician's legacy to his country.* (f) There must be some mistake here, for these two ingredients will not flame when treated as above.

the powder of liquorish. This is to be taken going to bed, in a glass of white-wine posset-drink, covering up warm, and drinking a quart or three quarts of posset-drink while sweating. Mynsicht's elixir of vitriol, often taken, though it may cause pain for sometime, yet most certainly destroys the gouty matter in the end. One who writes notes to the Legacy, suspects the doctor's cure for a dropfy, which he had not told, to be oil of juniper, or else an infusion of juniper-berries roasted, and made into a liquor like coffee. His cure for an anasarca, is an electuary composed of steel prepared with sulphur and crude antimony, each an ounce, diagridium four ounces : make a fine powder of these ; then add as much of any syrup as will make a soft electuary. The dose is a large spoonful at night going to bed, and another in the morning. Liquors must not be taken with this purge. Alum posset-drink is an effectual cure for a diabetes. A phthisis pulmonalis is principally to be cured by frequent bleeding in small quantities. In one patient, he determines the quantity to have been six ounces once a day for a fortnight. He recommends large doses of mercurius dulcis, with cinnabar of antimony, in the nervous or head-diseases, palsey, hemiplegy, epilepsy, apoplexy. He cured the plague among some sailors, in a voyage, by one very plentiful bleeding, to the quantity of an hundred ounces, and with drink sharpened with spirit and oil of vitriol. In spotted fevers he recommends large bleedings, purging every other day, with a paregoric at night, and cooling acidulated medicines in the intervening days. He cured a young man of such a fever, and a violent hæmorrhagy at the nose, by putting him into cold water. In the confluent and anamalous small-pox, he recommends sweet mercury and cinnabar of antimony, on the seventh and thirteenth days. In an angina or quinsy, besides high bleeding, he recommends a gar-garism composed of sublimate mercury half a dram, cream of tartar two drams, dissolved in a pint of spring water. Fevers on the spirits are cured by the bark.

bark. In diseases of the stomach, he is against vomiting; but thinks purging more reasonable.

*For the Year 1733.*

DR. Boerhaave has communicated to the Royal Society at London several experiments concerning mercury. 1. Quicksilver, however well purified, yields always a soft black powder of a sharp brassy taste, when long exposed to violent conquassation, or to a degree of heat twice as great as that of animals. 2. Heat, near as strong as what is necessary for distilling quicksilver, changes the greater part of mercury, if not all of it, into a heavy, shining, red, friable powder, of a sharp nauseous taste, which long and violently disorders the human body, and disposes it to excretions. 3. The fluid quicksilver remaining after this red powder is separated, is more fluid, and of less specific weight than common mercury. 4. All the black, and near the whole red powder, can be brought into the former fluid state, by a more intense heat; and this revivified quicksilver enjoys all the properties of common mercury. 5. The small part of the red powder, which is not revivified, can scarce be raised by the force of fire, and becomes of a dusky colour, swelling like a sponge, vitrifies with borax, but with lead flies off. 6. Quicksilver reduced to a black powder by amalgamating it with one fourth part of lead, and then put in vinegar, the quicksilver rises before the vinegar boils (a).

Quicksilver has been given at Edinburgh in several forms, different from those commonly in use before. Tho' several have taken an ounce or two of crude mercury each morning several weeks, we know no instance of its increasing any of the sensible evacuations, but have been told, that some who used it thus, had passed some of it with their urine, and that the hands of others, taking this medicine, had tinged their snuff-boxes, &c.

(a) Phil. Trans. N<sup>o</sup>. 427. § 2.

Æthiops albus, or quicksilver rubbed with a double quantity of crabs-eyes, or of sugar-candy, till it is extinguished, has been taken by some without any sensible effect; yet we have had the experience of a very small quantity of it having raised a high salivation in others. Quicksilver, extinguished in prunells, has operated much in the same way. Dissolved by rubbing it strongly with any chemical oil, or with Venice turpentine, it has been given to the quantity of a scruple, half a dram, or two scruples in a day. Such pills keep some people's belly open, others they purge, and a gentle ptyalism has sometimes been occasioned, nay, a high salivation has been raised by them.

Dr. Plummer's Æthiops (a) has been successful in several desperate cutaneous diseases, and obstinate glandulous swellings.

An imitation of Belloste's pills has also been tried: these are made of quicksilver, resin of guajacum, a chemical oil, and extract of rhubarb: they purge gently. We have not heard that they increased the excretion of saliva.

Crude antimony is recommended in palsies, pains, and numbness, which come on after a salivation, and is said to have cured several who were paralytic from other causes. The method of giving it, is to begin with three grains, increasing the dose with three grains every day, to half a dram: after which, the dose is diminished three grains every day, till it comes down to the quantity of the first dose (b).

The French physicians are at present much divided in their opinions concerning the famed powder of the chartreux, or kermes mineral. It is the sulphur of antimony prepared by digesting the powder of antimony in a solution of fixed alkaline salt, in a sand-heat for a day; then boiling the liquor two hours, when it becomes of a red colour, and being decanted into another vessel, lets fall a red powder, which is freed from the salt, by washing with water; after which

(a) See Medical Essays abridged, vol. I. p. 203. (b) *Commerce Literar.* Norimberg. 1733. *Hebdom.* 2. § 2.

it is dried for use. Half a grain, or a grain of this powder, given every three or four hours, produces no violent effects; but by increasing the dose, it may be made to vomit, purge, and sweat. Some commend it as the most universal resolvent and deobstruent, assuring us, that it almost infallibly cures pleurisies, peripneumonies, asthmas, catarrhs, anginæ, small-pox, and many other diseases: others are as positive that it heats and thickens the blood, thereby increasing obstructions, and is particularly hurtful in all inflammatory diseases.

From the effects of the medicine, which has now the great run at London, it appears to be butter of antimony, a most violent destroyer of all animal substances, being composed of the reguline part of that mineral, corroded by the concentrated acid of spirit of nitre (a)

Dr. Boeli recommends the powder of the root of valerian, taken by way of snuff, as a restorer of weak sight, and mentions some examples of his success with it. As he orders it, there may be some doubt on what the success depends. His receipt is, Rx. Rad. valerian. Fol. tabac. ana drach. ij, fiat pulv. subtilissim. adde Ol. destill. Lavendul. Majoran. ana gutt. iij. M. (b)..

Sir Hans Sloane informs us of four children, who, after eating the seeds of the *hyoscyamus niger* C. B. or common henbane, were seized with great thirst, swimmings of the head, dimness of sight, delirium, and profound sleep; which last continued two days and nights in one of them. The delirium differs from the common, and in some measure agrees with that produced by the *dutroa*, a species of the *stramonium*, and by the *bangue* of East-India, a sort of hemp. He cured all these children by bleeding, blistering, and purging afterwards with a medicine composed of lenitive electuary, oil of sweet almonds,

(a) It appears, from experiment, that butter of antimony is composed of the reguline parts of antimony, and the acid of sea-salt.  
 (b) Act. physico-med. acad. natur. curiol. tom. III. obs. 125.

flower of sulphur, and syrup of peony; which operated both by vomit and stool. He also tells us of a quack, who cured the tooth-ach by conveying the smoak of burning henbane-seed into the hollow tooth (a).

Dr. Short, in his history of the mineral waters of Yorkshire, Derbyshire and Lincolnshire, has classed them into the warm, purging chalybeate, diuretic chalybeate, purging and plain sulphur waters. He found the warm waters to be impregnated with a mineral steam, vapour, or spirit, containing a most subtle and impalpable sulphur, with a calcarious earth, and some nitre and sea-salt. Of those he mentions, that of Buxton seems to be the principal, the heat of which is equal, in frosty weather, to common river water, with which two fifths of boiling water has been immediately mixed. The purging chalybeate waters contain a mineral spirit, sulphur, vitriol, nitre and sea-salt, with a calcarious earth, of which some particles are attracted by the loadstone. Of these, Scarborough spaw is now in greatest reputation; the principal salt of which consists of long crystals made up of six sides, which all concur at each extremity in a point; this he calls nitre. The diuretic chalybeate waters consist of much the same principles with the former class, only the salts are in less proportion. Of these there are great numbers in Yorkshire. The sulphur waters, besides sulphur, contain also marine salt and nitre, or nitre only and earth. Of these the strongest is Harrigate-well.

Dr. Shaw, in his treatise on Scarborough waters, lays down a great many rules to be observed in the investigation of all mineral waters, which deserve to be seriously considered by all employed in physick. The contents of the purging spaw, which is what is chiefly used, are much the same in Dr. Shaw's account as in Dr. Short's, only Dr. Shaw has described the first salt, as consisting of no more than four sides, of which two are broad, and two are narrow; the two broad ones, which are opposite to each other, are extended into a

(a) Phil. Trans. N<sup>o</sup>. 429. § 1.

sharp edge at one extremity of each crystal, the narrow sides not shooting out so far; and the reverse is observed at the other extremity of the crystal. He affirms this salt to be sui generis. This water proves a gentle cooling purgative; but as the salt is in a small quantity, the operation of the water is often required to be assisted by some of the prepared salt.

Dr. Waltherus, after comparing the muscles of the human body with the descriptions of them published by several authors, particularly by Mr. Winslow (a) has made several accurate remarks on them, which may serve as a supplement to his *Anatome teneriorum muscularum repetita* (b).

Dr. Nichols has (c) contradicted the received doctrine of the motion of the heart, and of the circulation of the blood, both in adults and foetuses. The circulation of the blood depends, says he (d), on six motions, 1. Of the right auricle. 2. Right ventricle. 3. Pulmonary artery. 4. Left auricle. 5. Left ventricle; and, 6. Of the aorta. Of these the 1st, 3d, 5th, are synchronous, as the 2d, 4th, 6th, likewise are; but the 1st, 3d, 5th, are asynchronous, and therefore

The two auricles      }      alternately      }  
The two ventricles      }      are relaxed,  
The two arteries      }      are contracted.

(e) Our author gives the following propositions concerning the circulation of the blood in foetuses. 1. The blood of the ascending cava is fitter for nutrition, muscular motion, and the subtle secretions, than the blood that is carried to the heart by the descending cava: for, the former consisting partly of blood lately triturated in the lungs of the mother, partly of blood returning from the vena portæ, and defecated in the liver, with the blood brought back from the iliack and emulgent vessels, may be looked on as arterious blood; the latter on the contrary being deprived of

(a) Exposition anatomique. (b) Nov. act. erudit. mens. Jun. 1733.  
(c) Compend. anatom. (d) Prælect. XV. (e) Prælect. XXIV.

many of its more subtle parts, bestowed on the nourishment of the fibres, or in the secretions of the brain, is altogether venous, and effete. 2. The ascending and descending aorta have asynchronous motions. 3. The blood of the ascending cava is pushed to the heart, at the time when the right auricle is contracted, and the left auricle is relaxed; and therefore it will not pass into the right auricle, and from that into the left; but must go immediately from the cava into the left auricle. 4. The blood which is sent from the left auricle, into the left ventricle, consisting mostly of the blood of the ascending cava, is wholly distributed to the heart and branches of the ascending aorta. 5. The blood which flows from the descending cava into the heart, passes partly through the lungs into the left auricle, to be mixed with the blood of the ascending cava, and partly passes into the descending aorta, not to be mixed with the blood of the ascending artery; that the blood which is returned to the mother may be venous, and effete. 6. The canalis arteriosus being shut by respiration, the descending artery acquires a motion synchronous to that of the ascending artery; and the blood of the ascending cava is sent to the heart, at the time when the left auricle is contracted, and the right auricle is relaxed, and therefore is wholly poured into the right ventricle, along with the blood of the descending cava. 7. The contents of the abdomen being pressed by respiration, the umbilical arteries, umbilical vein, and the ductus venosus, are soon shut up. 8. The usual crying of new-born infants, contributes much to the distention of the lungs, and breaking down the particles of the blood. The doctor next explains a figure he has caused to be drawn of the two auricles of the heart of a foetus, to shew the canals; by one of which, the vena cava ascendens opens into the right; and by the other, into the left auricle; at each of which he paints a valve. He illustrates afterwards his scheme of the circulation of the blood in a foetus by another figure; in explaining which, he assumes the second and third of the preceding propositions as demonstrated.

Dr. Nichols's opinion concerning the circulation of the blood in born and unborn animals, is so different from what has prevailed since Harvey's time, that we cannot but wish he had been more explicite, and would add the experiments or other proofs that can be brought to support his doctrine. With a view to be informed, and to induce perhaps the doctor to explain himself more fully, we shall propose one question which naturally offers itself, upon looking at his scheme of the circulation in a foetus. What preserves the form of canals to F (the passage from the cava ascendens into the right auricle) and to N, (the part of the aorta between the rise of the left subclavian artery, and the insertion of the canalis arteriosus) seeing by the explication of the scheme no liquors pass through them?

The cataract is generally now agreed to be, for most part, the crystalline humor rendered opaque. To confirm this, Dr. Scheuchzer communicates the dissection of two cataractous eyes, on one of which the operation had been performed with success. In the eye which had not been couched, the crystalline which adhered to the circumference of the uvea, was of the colour of whitish pearl, but less bright. In the other eye the crystalline was less, harder, inclined to a yellow colour, and depressed below the uvea. A cloud was observed in the part of the vitreous humor through which the needle had passed (a).

The cases in midwifery mentioned by Mr. Giffard, may be reduced to two; 1. That the head of the child is fallen down among the bones of the mother's pelvis, and does not advance with her throws, and cannot be pushed back into the womb. 2. That a wrong posture of the child, the flooding or weakness of the mother, make it necessary to bring the child away by the feet. In the former of these two cases he made use of an extractor, which is so far different from that described in p. 223 of this volume, that the blades of it consisted each of an oval ring bended, instead of an entire piece of thin steel. Dr. Hody, the editor of

(a) Act. physico-med. acad. n. c. tom. III. obs. 36.

Mr. Giffard's book, publishes with it an improvement made on the extractor by Mr. Freke, which consists in one of the handles having a joint in the middle of it, and its extremity being a sharp hook which has a moveable flap to cover it, when it is not employed as a hook.

Mr. Chapman (a) affirms, that he never observed the lateral pointing of the womb, insisted on by Deventer, but has observed it turned forwards or backwards. He condemns greatly the use of the crotchet in the delivery of women, unless when there is an entire certainty of the child being dead ; which only can be determined by a concurrence of all the symptoms mentioned by authors, and not by one or two of them. He condemns the make of the extractors he has seen others employ, but does not describe his own, nor his manner of slipping a fillet over the child's head. The most effectual remedy in flooding is, to cover the patient's body with clothes dipped in oxycrate, repeating them as they grow warm, and giving cool acid liquors to drink. After a hard labour, and where there has been a necessity of using some violence, the woman is to be treated as one bruised by a fall. Here, says Mr. Chapman, as a thing of the greatest service, I would recommend wrapping of the body round with a sheep skin hastily flead off, and applied as warm as possible : I have, for many years past, had a happy experience of this, and wish I had come sooner to the knowledge of it than I did, as having always made use of it with success. This method is recommended by Guillemeau.

Dr. Schulze contradicts the common opinion concerning the umbilical vessels ; he endeavours to prove, that the navel is not formed by the ligature which the midwives make, or by animals gnawing the navel-string of their young with their teeth, but by nature ; and that the umbilical vessels separate spontaneously, or with very little force, from the interior surface of the skin, after which, the umbilical vessels

(a) *Essay on the improvement of midwifery.*

within the young creature's body contract and shrivel, their extremity by which they adhered to the navel becoming black and pointed, as if they had been burnt, and at last disappear altogether ; for, says he, what are commonly described, as these vessels changed into ligaments are no other than the sheaths in which they were formerly contained. From this doctrine he concludes that it is unnecessary to make any ligature upon the navel-string after birth.

In confirmation of this Dr. Eller relates several instances of the navel-strings of children being left untied after they were cut, without being attended with any hæmorrhagy, or other bad consequence (a).

Dr. Trew having carefully examined the state of the umbilical vessels of subjects of different ages, observes that the shriveling is not peculiar to these parts, several other parts being changed in the same way : he could discover no mechanism by which a hæmorrhagy should be prevented without a ligature, when the umbilical vessels are cut ; and concludes, that seeing there are examples of hæmorrhagies from neglecting to tie the navel string, it would be very unsafe to forbear the use of the ligature (b).

Dr. Stewart, formerly (c) communicated an observation of a man whose gall-bladder was wounded without any other bowel being much hurt, and whose symptoms, in the seven days he lived afterwards, were a great distension of his belly, without flatus upwards or downwards, or borborygmi ; no passage by stool, and very little urine, notwithstanding purgatives and clysters were given him, and that he took a sufficient quantity of drink and liquid food ; neither had he any sound sleep, but only short slumbers, though he took opiates. There was no sign of fever, his pulse continuing in a natural state till the day before he died, when it intermitted. The wound in the teguments never suppurred well. After his death the guts were found greatly distended, the gall-bladder

(a) Commerc. Norimb. 1733. hebd. 48. § 2. (b) Ibid. hebd. 49. § 1. & hebd. 10. § 1. (c) Philosoph. transact. numb. 414. § 2. almost

almost empty, and a great quantity of bile lodged in the cavity of the abdomen. The doctor accounted for all these appearances, from the defect of bile within the intestines, to stimulate them to a due contraction whereby they might resist the elastic air, or push the food into the lacteals, or expel their contents.—The depriving him of a due recruit of chyle, occasioned his want of sleep, diminished the secretion of urine, and prevented a suppuration in the wound.—The vessels being emptied by the secretions which were not compensated by new chyle, while the more acrid particles of the blood were carried off in the secretion of bile, without any of them returning to the blood again; and therefore the vessels being neither stretched nor irritated, there could be no fever.—Since there was a constant waste of this man's liquors without any supply from the food, the doctor concludes him to have died famished. This account of the symptoms did not satisfy some people, whose difficulties our author now endeavours to remove. To those who remark, that the gall (especially in such large quantity as in this history) when applied to the exterior surface of the guts, might have irritated some particular parts of them to a spasmodic constriction, which would have occasioned the distension of the intermediate parts, and the other symptoms, as well as the causes assigned above; he replies, that nerves only exert their action at their extremities, and therefore, in the case before us, the bile could not have given pain, nor excited a contraction in the muscular fibres of the guts. 2. The irritation of the exterior membrane of the guts, would have no effect on the muscular coat, because the former has its nerves from a source different from those of the latter. 3. The gall being equally diffused over the surface of the guts, must have made an equal contraction of their fibres every where, which was not the case. In explaining how a fresh recruit of chyle should be a cause of sleep, he is obliged to examine how, and by what sleep is produced. I believe, says he, it will hardly

hardly be denied, that the cause of sleep in general is a want of a sufficient quantity of animal spirits for the use and exercise of the animal functions; therefore whatever prevents their recruit, hinders their secretion, absorbs, or fetters them when produced; and whatever exhausts and evaporates them, by occasioning a paucity of spirits, will, in a healthy person, produce a listlessness, laziness, a tendency to sleep, or sleep itself, in proportion to that paucity of the remaining spirits. To illustrate this doctrine, he considers the remoter causes of sleep, which he reduces to four. 1. exercise. 2. a too plentiful meal. 3. drunkeness. 4. narcoticks. And then proceeds to shew how these produce such effects. Exercise wastes all the fluids, and particularly the animal spirits.—the great quantity of chyle after a full meal makes all the fluids of a thicker consistence, and absorbs the animal spirits.—fermented liquors and ardent spirits being observed to diminish remarkably the serous secretions, may therefore be reasonably concluded to fetter the finest fluid, which is the animal spirits, and to hinder its separation from the other liquors.—soporificks act much in the same manner. In sleep a sufficient quantity of spirits still remains for actuating the organs of the vital and natural functions, to which they are determined by more powerful causes, such is the impetuous blood in the heart, gravitating air in the lungs, digesting food in the stomach, &c. than there are to determine them to the organs of the animal functions. Hence awaking is owing to a quantity of spirits so much greater than what is required for the vital and natural functions, that they must excite the animal likewise. The last proposition which he undertakes to prove is, that pus, being a gross secretion, is the product of the chyle, and not of the blood or serum; for, says he, I think it would not be difficult to prove that all the gross secretions are from the chyle (a).

Mr. Evan Davis communicates to the Royal Society the histories of several children inoculated with the

(a) Philos. trans. numb. 427. § 2.

small-pox at Haverford-West in Pembroke-shire, while the measles were epidemick there in February and March, after the small-pox had been very mortal through the winter. Every one of them who were infected thus with the variolous matter, only became feverish in the seventh or eighth day after the inoculation, and the measles appeared soon after. On the twelfth day they were again attacked with a fever, and on the fourteenth the small-pox of a mild kind were seen (a).

Dr. Lobb, in his rational method of curing fevers, after having examined the nature of the fluids and solids of the human body, things necessary to health, (such as the air, aliments, secretions, and evacuations,) the causes of diseases, and particularly of fevers, concludes, that whatever may be the productive causes of fevers, the state of the fluids in people under them, must be one or other of these following ; 1. That the animal fluids are too thick, that is, they are viscous or glutinous, which seems to be the case in all inflammatory fevers. Or, 2. That they have particles too bulky for an easy circulation and excretion, till they are comminuted. Or, 3. That the animal fluids are too thin, and the natural union of their component particles is more or less dissolved, and the globules of the blood and lymph more or less broken. Which appears to be the case in putrid, malignant, and many pestilential fevers, and in all fevers attended with colliquative evacuations. Or, 4. That the fluids have acrimonious and corroding particles mixed with them, which is the case in all fevers attended with ulcerations from an internal cause. While the fluids are thus affected, the solids are rigid, or too dry; or they are too lax.

(a) Ibid. numb. 429. § 9.

*For the Year 1734.*

R<sup>E</sup>gnault has revived the dispute concerning the discovery of the circulation of the blood (a).

Dr. Tronchin (b) quotes several antient authors who knew the clitoris, and proves Bonaciolus to have mentioned it before Columbus or Fallopius.

Mr. Morand gives a short history of the lateral operation for the stone, and argues that the methods of Celsus, Frere Jacques, Rau, and Cheselden, are in the main the same (c).

In some accounts in the transactions of the Royal Society of London, ambergris is said to have been found in a cyst near the genital parts of the bull-spermatical whale (d). These papers have given rise to a long treatise on ambergris, by Dr. Neuman (e) : he examines these accounts, and endeavours to prove, that what the fishers took for ambergris, was no other than calculi contained in the urinary-bladders of whales, at least that it was not ambergris : the chemical analysis of which, shews it not to be an animal substance ; for it affords no urinous volatile spirit or salt, but, on the contrary, a small quantity of an acid salt, exactly like to salt of amber. He communicates his method of making a right tincture of ambergris in spirit of wine. The process is very simple ; it is only to put a twelfth part of ambergris broke into small pieces, among well dephlegmated spirit of wine in a glass, and then to expose them to such a heat as makes the spirit begin to boil. The quantity of ambergris used by Dr. Neuman, in this analysis, having been very small, some London chemists analysed larger quantities (f). The principles it yielded, were very like to those got from amber, only Mr. Brown could obtain no acid salt. Mr. Godfrey obtained

(a) *Origine ancienne de la physique nouvelle.* (b) *Dissertatio de clitoride.* (c) *Memoires de l'acad. des sciences, 1731.* (d) See *Phil. Trans. N° 385, § 11.* (e) *Ibid. N° 433, § 5.* N° 434, § 1. N° 435, § 1. (f) *Ibid. N° 435, § 2.*

twice a subacid phlegm like weak vinegar, and in his third trial the phlegm rather appeared to be impregnated with a neutral salt.

Mr. Petit, the physician, concludes, from a great many experiments he made in covering pieces of flesh with the different sorts of astringents employed in hæmorrhagies, that some act only as absorbents; such are earthy substances, most of the astringent plants, some gums, resins, and animal substances. Other astringents absorb, and at the same time their saline and sulphureous particles, insinuating themselves into the flesh, preserve it from corruption. Vitriol and allum, which are acknowledged to be among the strongest astringents, appeared by his experiments to absorb most humidity (a).

Mr. de Maupertuis having caused scorpions to bite several animals, of which very few died, or suffered any more than the pain of the sting, is of opinion, that oil of scorpions, and other vulgar antidotes to the poison of these animals, have rather got their reputation from the innocence of the sting of these creatures, than from any considerable virtue in the medicines (b).

Mr. Vincent Bacon relates what he observed in a man who had eat monkshood, napellus, or aconita spicâ florum pyramidali Morison. prælud. bot. in a fallad dress'd with oil and vinegar, after a supper of pork. Immediately after eating the fallad, the man felt a tingling heat, which did not only affect his tongue, but his jaws, so that the teeth seemed loose; and his cheeks were so much irritated, that he could scarce persuade himself that his face was not swelled to twice its proper size. This tingling sensation spread itself farther, till it had taken hold of his whole body, especially the extremities. He had an unsteadiness in the joints, especially of the knees and ankles, with twichings upon the tendons, so that he could scarce walk across the room; and he thought that in all his limbs he felt a sensible interruption in

(a) Mem. de l'acad. des sciences, 1732.

(b) Ibid. 1731.  
the

the circulation of his blood, and that from the wrist to the fingers ends, and from the ankles to the toes, there was none at all: But he had no sickness, or disposition to vomit, till suspecting himself to be poisoned, he drank a pint of oil, and after that carduus-tea till he vomited; and though he threw up the greatest part of his supper, yet his symptoms still increased. His head grew giddy, and his eyes misty and wandering. Next, a kind of humming, or hissing noise, seemed continually to sound in his ears, which was followed by syncopes. Some spirit of hartshorn being poured into his mouth, rouzed him a little, and set him first a coughing, and next a vomiting. Being plied with carduus-tea, he vomited several times more, but swooned often between the times of reaching, notwithstanding that forty or fifty drops of sal volatile and tincture of saffron were given in a glass of wine after each time of reaching. At length he began to find a working downwards, which was followed by a stool; after which he vomited two or three times more, and then said, his head was so heavy, and his strength and spirits so exhausted, that he must needs lie down. His pulse was then a little returned, tho' much interrupted and irregular. Having observed that what he had last vomited was little more than the pure carduus-tea, Mr. Bacon gave him a draught made of aq. epidem. theriac. androm. conf. alkerm. &c. and sack-whey between whiles, sometimes alone, and in case of great faintness, with some of the above-named drops. He lay awake, tho' still, an hour or two; but being very cold and chilly, had a great deal of covering laid on him, and then found a kindly warmth come over his limbs, which was succeeded by a moderate sweat, and then a quiet sleep of four or five hours, from which he awaked much refreshed. Next day he was much amended, and capable of answering questions with regard to strength, his senses never failing him, but during the swoonings. In three days he was quite well.

A woman who had eat a little of this falled, felt and complained of the same symptoms, but in a less degree than the man. She would not be prevailed on to vomit, and remained longer out of order (a).

Mr. Quesnay (b) infers, from the effects of heat upon oils, how much the nature of oily medicines may be changed in preparing them, according to their being longer or shorter heated or boiled ; and therefore that surgeons should have a particular care to adapt them by this means to the various cases for which they are to be applied.

Dr. Morgan (c) gives it as his opinion, that the mechanical effections of medicines may be reduced to these six : 1. Repletion and depletion ; 2. Rarefaction and condensation, or heating and cooling ; 3. Solution or fluxilization, and olefaction or inspissation ; 4. Derivation and revulsion ; 5. Constriction and relaxation ; 6. Stimulation and pacification.

Dr. Neuman having related to the Royal Society of London his remarks on the hard crystalliform substance found in the oil of thyme and other plants, affirmed it to be so like to camphire, as to deserve that name (d), Mr. Brown soon after (e) made remarks on this paper, and mentioned several experiments, by which it appeared that common camphire differed considerably from that crystalliform substance.

Mr. Boulduc has given much the same description of the manner of making Epsom-salt, as Mr. Brown had done (f); that it is the salt which crystallizes, after boiling to a due consistence, the bitters, which is the liquor remaining in the salt-pans after the sea-salt is separated (g).

Mr. Boulduc also describes Seignette's sal poly-chrest : it is a soluble tartar made with sal kali, instead of salt of tartar (h).

(a) Philos. Transl. N° 432, § 111. (b) Essai physique sur l'œconomie animale, p. 87. (c) Mechan. practice of physic, prop. VII. (d) Vide Phil. Transl. N° 389, § 2. (e) Ibid. N° 390, § 2. (f) Ibid, N° 337, § 10. & N° 378, § 11. (g) Mémoires de l'acad. des sciences, 1731. (h) Ibid.

The method hitherto employed for making tartar, or its crystals, soluble, has been by saturating them with an alkaline salt; but now Messrs. Grosse and du Hamel have shewn, that all lime, chalk, or earth, that is dissolvable by vinegar, will serve for making tartarus solubilis (a).

Mr. Homberg, by dissolving borax in water, into which he poured oil of vitriol, and then distilling this mixture, obtained his quieting salt. Mr. Geoffroy has lately taught us an easier way of preparing it; he evaporates the liquor to the proper consistence, and then allows it to crystallize (b).

The common opinion is, that all the animal liquors, excepting chyle and milk, are of an alcalescent nature; but Mr. Quesnay (c) affirms, that our gelatinous liquors contain a very aëscent salt, capable of resisting a heat of two hundred degrees. The proof of which, says he, offers itself daily to every one. Who is it who has not remarked, that broth made with flesh well freed from fat, when corrupted, becomes as sour as verjuice? The foundation on which Mr. Quesnay builds his doctrine concerning animal liquors, is the separation of milk into its oily, cheesy, and watery substances (d).

Mr. Hunauld has the following observations on the fat of the body: 1. That tho' fœtuses and children have much fat under the skin, yet they have only a small piece or two (pelotons) at the base of the heart, whereas even lean adult bodies have fat all round the base, on the vessels that go out of the heart, and accompanying the larger coronary vessels, and at the point of the heart. 2. That the omentum of very young children has no fat, and their mesentery very little. 3. That in many people the fat under the skin is exhausted, while the bowels are overcharged with it. 4. The exterior part of the tunica cellularis is the first filled with fat, and the last emptied of it. From which, and seeing aponeuroses and membranes spread

(a) Mémoires de l'acad. des sciences, 1732. (b) Ibid. (c) Sur l'œconomie animale, p. 144. (d) Ibid. p. 165.

over so many muscles, he concludes, the common opinion of muscles being lubricated by the fat, to be ill founded (a).

Dr. Nisbet (b) undertakes to demonstrate, that the notion of all, or any bones being originally cartilaginous, is without foundation in nature. His opinion of ossification is (c), that in the blood, or a fluid secreted from it, there is an ossifying juice consisting of particles which are not apparent: that (d) whenever nature designs an ossification between membranes, or within a cartilage, she occasions a more than usual afflux of fluid, which distends so much the vessels which were before invisible, as to make them capable of receiving the red globules of blood, which is always to be seen near to where ossification is begun. In this blood (e) gritty bony particles are to be felt by the point of a knife, which (f) have been formed by the attraction and cohesion of the particles of the ossifying juice obstructed, along with the other grosser fluids in the beginning of the vessels, prepared to receive refluent juices. The blood being capable of forming fine membranes, the membranous parts of a bone, which act as a gluten to keep these particles and fibres together, if there be any such, that do not arise from the coats of its vessels, are produced by a cohesion round the cretaceous particles of a part of the fluid, in which they were generated and contained. Thus (g) the membranes or cartilages serve as a bed between, or within which the bony particles are deposited or shoot; but (h) without any intermixture of the particles of the bone and cartilage, or continuation of the fibres of one substance to those of the other, as is evident in cartilages containing bones kept long enough in water, and then slit; for the bone will, as soon as the large vessels that enter its substance are divided, slip as easily, if not easier, from it, than an acorn does out of its cup: and there

(a) *Histoire de l'acad. des sciences*, 1732. (b) *Human osteogeny*. (c) *Ibid.* p. 31. (d) P. 17, 25. (e) P. 28. (f) P. 18. (g) P. 10, 38. (h) P. 21.

is a smoothness and polish of the parts of both cartilage and bone, which shew there is no conjunction or union of the fibres of the two substances. While the bones are increasing within cartilages (a), the cartilages are extended and spread out, by which, with the pressure which they suffer, and the great influx of various fluids, and the nutritious matter being hindred to flow freely into them, they decrease continually, and at last may truly be said to be entirely destroyed.

Mr. Weitbrecht has described and delineated a ligament, which had not been observed by anatomical writers, stretched from the posterior part of the anterior extremity of each clavicle behind the sternum, to the same part of the other clavicle, which makes the articulation of the sternum and clavicles stronger (b). He has also described and painted some bones and muscles of the hand more accurately than they are found to be in other books (c).

The improvements made by Mr. Albinus in his *Historia Musculorum*, will not allow of an abridgment, and therefore we refer to the book itself. We cannot but regret that he has given us no more plates than four, representing the muscles, ligaments, and bones of the hand, which are most accurate and elegant.

Dr. Morgan (d) repeats the objections he had made in his *Philosophical Principles of Medicine*, to muscular contraction, being owing to the influx of a fluid of the nerves into the muscular fibres. To elasticity then he ascribes the motion of muscles, as is more fully explained in his principles. We wish the doctor would impartially try the application of the objections he has made to the common opinion, likewise to his own doctrine. He attacks Boerhaave's arguments in favour of animal spirits, which, he thinks, the professor gives up, by acknowledging that they cannot be exhibited to any of our senses (e). He

(a) *Human osteogeny*, p. 34, 35. (b) *Comment. acad. scient. Petropolit.* tom. IV. p. 255. (c) *Ibid.* p. 234. (d) *Mechanical practice of physic*, prop. XII. (e) *Schol. 1. of prop. XII.*

laughs at the opinion of secretion being only owing to the laws of circulation, and thinks some concoc-tion or fermentation necessary. Nor will he allow that all the liquors fecerned, have first entered the blood-vessels, insisting still, as he had done formerly, that the urine passes from the stomach to the bladder, without entering into the common course of the cir-culation (a).

Dr. Morgan (b) endeavours to shew, that Dr. Juryn (c) has confounded three perfectly different and distin&t laws of motion, namely, the law of communicating motion by impulse, the law of gravity in general, and the particular law of pressure in fluids ; and then ex-amines the paradox, concerning the circulation of li-quors in animals, advanced by Dr. Juryn (d), to wit, that the momentum of the blood is greater at the ex-tremities of the evanescent arteries than at the heart. The contrary of which, Dr. Morgan thinks is clearly demonstrated by the greater thinness of the coats of the small arteries than of the large ones, and from the capacities of all the branches of every artery, be-ing so much greater than of the trunk itself, while the same quantity of blood passes through the trunk and branches in the same time. (e) He roughly cri-ticizes Dr. Robinson's laws of motion in fluids, and afterwards attacks the doctrine which Dr. Robinson has borrowed from Sir Isaac Newton concerning the acid in the air which they supposed necessary for the life of animals, and to preserve the action of fire and flame. Dr. Morgan's principal objections to this doctrine are, that acids extinguish fire, that acid va-pours are more suffocating and destructive than any common watery fume or vapour ; and that acids cannot effervesce with the blood, nor do they increase, but rather diminish heat. Our author's opinion of the use of air to fire and animals, is, that it serves as a proper exhal-ing medium to receive and carry off those copious dis-

(a) *Ibid. schol. 2.* (b) *Ibid. prop. VI.* (c) *Dissertatio de motu aquarum fluentium.* (d) *Ibid.* (e) *Schol. of prop. V.*

charges of humid effluvia or moist vapour, which all living creatures, and all combustible matter under the action of fire, are incessantly emitting.

Anatomists, in their figures and descriptions of the brain, only represent the cavities which are seen upon separating the hemispheres, and taking away the corpus callosum, without observing that the crura fornici sink down, and then turn forwards on each side of the medulla oblongata, in cavities which are extended far forwards, under the commonly known anterior ventricles. In these inferior cavities the crura fornici are of a beautiful form, resembling a white silk-worm or sea horse; on which account they were called hippocampi by Julius Cæsar Arantius, who is the only author who has given any description of them, till lately Mr. du Verney has revived them, by an exact description and delineation. Mr. du Verney also observes, that the septum lucidum between the anterior ventricles, has a cavity between the two lamellæ of which it is composed, in which he has often found water; and that the internal side of the septum is made rough, by a great many small grains and papillulæ (a).

The French anatomists have of late disputed, whether or not the heart is shortened in its systole, tho' all allow that it is then straitened (b).

According to Mr. Quesnay (c), the motions of the heart, and the circulation of the liquors, depend on the motion of the lungs, which sending the blood forcibly into the left auricle, revive and increase its elasticity and contraction by this shock, which the auricle communicates to the ventricle, which affects the arteries in the same way; and these do the same to the veins which act upon the right auricle, and that upon its ventricle: and thus the circulation is continued.

Mr. Lindern relates two observations which contradict the doctrine of violent trituration, said to be performed by the stomach in digestion. 1. A dog

(a) Comment. acad. Petropolit. tom. IV. p. 130. (b) Hist. de l'acad. des sciences, 1731. (c) L'œconomie animale, p. 227.

having swallowed a dice, vomited it eleven or twelve hours after, when the bony part of the dice was much diminished, but the pins of wood, on which the spots are marked, were entire, and stood out a considerable way from the bone. 2. Three stomachs of swine were crusted so thick over their interior surface with a stony substance, that all their cavity was filled, except a canal in the middle, of about an inch diameter. Notwithstanding this, the flesh of the creature was fair and sound, and sold well (a).

Ruysch (b) painted the meseraic arteries and veins as having different courses in the distribution of their branches in the intestines. Dr. Albinus (c) attributes this mistake to Ruysch's having injected the arteries at one part of the intestines, and the veins at another; and by a figure representing the internal cellular membrane of the ilium, with both arteries and veins injected, shews their courses to be the same.

Mr. du Vernoy is of opinion, that the valvulae conniventes of the intestines, are formed by the arched vessels and fat in the internal cellular coat, and covered by the villous or nervous coat (d).

Mr. du Vernoy has added one opinion more to the many already given concerning the use of the spleen. From observing a large empty space, near the spleen, in the abdomen of a dead body, the proportional largeness of its blood-vessels, and the structure of the spleen analogous to that of the penis, he concludes the spleen in a living person to be subject to inflations like a bellows; but how it is thus to be moved, or to what purpose, he does not tell us.

Dr. Rega (e) mentions the opinion of some modern authors, who imagine that our drink passes through the coats of the stomach and bladder, &c. when it is so quickly evacuated by urine, as it is observed to be after drinking several mineral waters and other li-

(a) Hist. de l'acad. des sciences, 1732. (b) Advers. Dec. 3.  
tab. I. fig. 4, 5, 6, 7. (c) Dissert. de arter. & ven. intestin.  
(d) Comment. acad. Petropolit. tom. IV. p. 192. (e) Second  
treatise on urine.

quors. He endeavours to prove, by an easy calcul of the quantity of urine secreted in the kidneys, that they are capable of furnishing all the quantity observed at any time. And, lastly, he mentions the fulness and greater frequency of the pulse after drinking these liquors, as a proof of their being mixed with the blood.

Dr. Morgan (a) observing that blood-letting does not supply the menses, concludes that they are not designed only for evacuating a superfluous quantity of arterious blood, but that there is then a very different and very independent secretion, or a derivation of a certain excrementitious and redundant lymph or serum, from the membranous cells and ventricles of the glands in general, but chiefly from those parts of the membrana cellulosa, which are more directly and immediately connected with the kidneys, uterus, and ovary.

Dr. Neufville (b) affirms, that a liquor injected by the human urethra, after the bladder is blown up, will come out at the urachus ; as it will likewise do, upon gently pressing a bladder filled with liquor, while the urethra is tied. He also informs us, that Mr. Albinus shewed his students the urachus of an adult, which was pervious, and allowed the urine to pass an inch from the bladder. And (c) that Mr. Albinus, in 1730, shewed the allantois of an human foetus about seven weeks old, loosely connected by small fibres, and placed betwixt the amnios and chorion, exactly where the placenta adheres to the chorion : it was like an oblong bladder, and much more capacious than the bladder of urine. The urachus likewise appeared distinctly in the umbilical rope towards its side, like a small thread, and terminated in the allantois.

Dr. Hunauld has communicated some thoughts on the operation of the fistula lacrymalis, and proposes that no tent should be put into the perforation of the os unguis, because the tears will of themselves keep it open (d).

(a) Mechan. pract. p. 246.  
§ 10. (c) Ibid. § 24.

(b) Dissertation on the allantois,  
(d) Phil. Trans. N° 437, § 5.

The Cæsarean operation is recommended by several authors, and Mr. Helvetius communicates to the Academy of Sciences at Paris a well-attested history of a woman recovering after the Cæsarean operation had been performed upon her by a midwife (a).

Mr. Petit the surgeon, in examining all the different methods employed by surgeons for stopping hæmorrhagies, assures us, that in each of them a piece of clotted blood is contained in the vessel, which serves to keep the blood from escaping after the effect of the medicine first employed ceases. Where absorbents or astringents are used; that there is not only a cylindrical piece of clotted blood in the vessel, but there is a covering of it on and round the orifice of the cut vessel, which cylindrical form makes it easily pushed out. Caustics have much the same effects, only the covering on the extremity of the vessel is firmer by the solid parts being confounded with the clotted extravasation.— When a ligature is used there is no clotted covering, and the internal plug is of a pyramidal figure, therefore it is with difficulty that such a clotted piece can be pushed out. Besides this advantage, the sides of the vessel, which are brought to be contiguous by the ligature, will probably grow together; for which reason, and the saving both pain to the patient, and loss of substance of the stump, he prefers compression to all the other methods (b). In proof of the effects of coagulated blood stopping the efflux of blood from large arteries, he relates two histories; in one, the artery was ossified; and in the other, it lay in a bony groove: so that in both, it must have been a plug which prevented the hæmorrhagy. He endeavours to prove, that the plug is stronger and firmer when formed of coagulated lymph, than when composed of red blood (c). For executing the compression right, after amputations of the larger extremities, he has contrived a machine, composed of a large circular belt, to be put round the trunk of the body, or su-

(a) Hist. de l'acad. des sciences, 1731. (b) Mem. de l'acad. des sciences 1731. (c) Ibid. 1732.

erior part of the member, which is to sustain the bandage, by straps going from it, which are fastned at the other end to a lesser circular belt that is put round the part of the member where the tourniquet is commonly applied. This lesser belt is to have two screws, &c. in the form of his screw-tourniquet, (a) From this lesser belt, four straps go out, to cross over two plates with their screws, as in the tourniquet placed on the stump. When the operation is performed, he applies thick bolsters of lint on the side of each large artery farthest from the bone, and placing the interior convex plate of the small tourniquet on them, he secures it in the right situation with the four straps, and screws down the plate on the bolsters and vessel, which being pressed between the instrument and the bone, can allow no blood to pass (b).

Dr. Desaguliers has contrived a machine for changing the air of the chamber of sick people in a little time, by either drawing out the foul air, or forcing in fresh air; or doing both successively, without opening doors or windows (c).

From considering, says Mr. Quesnay (d), all the effects of blood-letting, it must be concluded, that there is only place for bleeding when the liquids disturb the action of the solids, or when the solids cause disorder in the fluids. For when the solids or the liquids are found defective absolutely, or in themselves, the bad state of neither of them can be repaired by bleeding.

Dr. Langrish (e) gives us tables of the different proportions of serum and gore, and the diffent powers of cohesion between the red globules which constitute the crassamentum, as also the proportions of the different principles obtained by a chemical analysis from the blood, and from the urine in different kinds of fevers, and in their several stadia. He tells us (f) the manner in which his statical experiments were

(a) Mem. de l'acad. des sciences, 1718.

(b) Ibid. 1731.

(c) See a figure, description and account of this machine, in Phil. Transact. N<sup>o</sup>. 437. § 1, 2, 3. (d) L'art de guerir par la saignée, p. 47. (e) Modern theory and practice of physic.

(f) p. 66. made;

made : by which means, he could very nicely determine the power of cohesion between the globules which constitute the crassamentum. By the tables of his statical experiments made on the blood of people in acute continual fevers (a), compared with what he says of the blood of three young men in perfect health (b) ; it appears that in such fevers the serum is in less proportion, and the crassamentum is more viscid and tenacious than in health. The indications of cure from which are plain. By the chemical analysis (c), it was proved, that in acute fevers the saline and sulphureous parts did abound more than in health. And (d) that the urine was impregnated more and more with these saline and sulphureous principles, as the symptoms abated upon a crisis by urine. Dr. Freind had recommended bleeding at the jugular veins, in a phrenzy coming upon a fever, which Dr. Langrish (e) endeavours to prove rather to be hurtful : 1. Because of the ligature's stopping the blood some time. 2. Because opening the external jugular cannot make a revulsion from the internal parts ; since not only the resistance to the blood in the common trunk of the carotid is thereby diminished, but also the resistance to that which comes out of the heart is also diminished, which will therefore send more by that common trunk, and consequently as much as formerly by the internal carotid. 3. After the orifice of the jugular is shut, there is some reason to believe that the blood continues to flow more by the superior branches some time, which will do harm. 4. He thinks the cases mentioned by Dr. Freind, for proving his opinion, either do it not, or can be turned against him.

By our author's experiments, in intermitting fevers (f), the crassamentum of the blood is not so viscid and tenacious ; neither is the serum so biliary, saline and acrid, as in acute continual fevers ; and the red globules abound more, and the cruor is more viscid and tough in quotidiants than in tertians, and in tertians than quartans.

(a) Modern theory and practice of physick, p. 68. (b) p. 74.  
(c) P. 80. (d) P. 94. (e) P. 131. (f) P. 229.

The epidemic fever, described by Dr. Douglas, seized half of the inhabitants of New-England, and killed one in thirty-five; in some places one sixth, one fourth, or one third of the sick died.—The greatest number of those labouring under this epidemic disease, after the common symptoms of fever, had swelling, pain, and white specks in the uvula and tonsils, and a distinct, red, miliary eruption over all, (or a breathing sweat that smelled as the eruption did) which was at the height the fourth day; after which it itched and scaled off, and the specks slough'd off from the subsiding fauces. They generally did well.—A worse kind of this fever was accompanied with a low unequal pulse, prostration of strength, despondency, colliquative vomiting, purging or sweats, chopp'd tonsils, with brown or livid spots; the eruption darker-coloured, or appearing and disappearing; ichor or pus coming by mouth or nose from parts out of sight; mucous exuviae sloughing off the tongue oesophagus or bronchia. Many thus affected died the sixth or seventh day.—In the worst sort, the pulse and strength were still lower, the colliquations were greater; and the sick had a sinking pain at the stomach, stupor, delirium or convulsions, and an intolerable fætor. The few thus seized died the first, second or third day. This fever was seldom too high, and the patients generally recovered when left to nature, with a temperate regimen. Evacuations, particularly blood-letting, hastned death, or retarded the cure. Hot cordials also did hurt. Snake-root-tea, or spirit of hartshorn and a little wine, supported the faint and weak, and promoted the salutary breathing sweats. Profuse sweats and diarrhoeas were stopp'd by Ol. cinam. Decoct. alb. Elixir. of vitriol, and toasted rhubarb. Calomel, which made the evacuation they bore best, and gargles of tinct. myrrh and aloes helped off the sloughs, and kept the throat moist.—This epidemic disease was followed in some with discolourings, hæmorrhagies, &c. like those in the scurvy which were cured by milk-diet, Peruvian bark and

and elixir of vitriol; in others with tumours, which resolved with mercurial plaisters and purging, but suppurated with cataplasms; and when supplicated, spread by digestives, but cured with spirituous drying applications. The nervous symptoms, such as hysterick ails, melancholy, fatuity, &c. remaining with others, were soon removed by a restoring diet.

Dr. Cohausen (a) recommends the Jesuits bark in intermitting fevers, but mentions several rules to be observed before it is given, while it is used, and after taking it. He condemns the use of purgatives as preparatives for the bark, and recommends emetics, especially in mesenteric fevers, where the primæ viæ are stufted. He recommends the bark to be given immediately after the aguish paroxysm, and to repeat the dose every four hours; and is of opinion it has better effects when taken with a bitter stomachic wine than in pills, and it is still more effectual when some green tea is drank with it. While the bark is used, and in the intervals of paroxysms, he says, exercise is of great use. Though our author is very fond of the bark in the cure of intermittent fevers, he cautions practisers to be very careful not to give it to all patients, or at improper times; because, though it may put off the fever, it occasions swellings, dropsies, pains of the belly, obstructions of the bowels, and a great many other diseases, (of which he gives several strong examples) that are more dangerous and worse to cure than the ague is. The best method, he says, to remove these bad symptoms, is to bring back the fever, for which Etmuller recommends volatile spirit of sal ammoniac: our author thinks a wine in which resolving diuretick and deterfive medicines are infused would be safer. He tells us, the people of Westphalia seldom miss to bring back the fever when necessary, by eating a high-smoaked sow's head. Mr. Cohausen is of opinion, that the continued remitting fevers which are periodical in their remissions, are of the same nature with agues, and ought also to

(a) Archeus febrium faber & medicus.

be cured by the bark, unless they are of a malignant kind, accompanied from the beginning to the end with coldness and a weak pulse; in such cases, dia-phoretics are the proper medicines.

The German physicians seem at present to be divided in their opinions concerning blood-letting in the small-pox, some still adhering to the hot regimen, while others recommend venæsection as the medicine most to be depended on. Dr. Burghart physician at Breslaw, in support of his friend Dr. Tralles physician in the same place, his treatise on the use and necessity of blood-letting in the variolous fever, proves by numerous observations of the good effects of hæmorrhagies from the nose and other parts of the body, and venæsection in the variolous fever, that in a great many cases it is the chief or only medicine from which the prevention of the worst symptoms is to be expected, though perhaps it is not necessary to every patient under this disease (a).

Dr. Calderwood (b) condemns the common method of letting blood from any vein, giving emetics or sharp clysters, and applying blisters: But insists much on the advantage of arteriotomy; and recommends cordials, in the cure of the apoplexy.

Dr. Astruc has wrote a regular and compleat account of the origin, nature, symptoms, prognostics, and cure of the lues venerea. In which, after examining critically all the arguments that have been used in proof of the lues having been known in Europe before the conquest of the West-Indies, he thinks them insufficient; and concludes, that it was brought from the island Haiti or Hispaniola by the Spaniards, who being employed in the defence of Naples, attacked by Charles VIII. king of France, communicated this disease to the inhabitants of that country and to the French army in 1494, when it was first taken notice of; and therefore was called the Neapolitan or French disease. He thinks the reason why the inha-

(a) Mantiss. ad specim. 1. saryt. medic. Silesiac. (a) New method of curing the apoplexy.

bitants of Hispaniola, and some other hot countries, had the lues endemic among them, was, the heat of the climate, and the promiscuous coition of their women even in the time of their menstrua. After having observed, that several diseases have had their progress and periods, and that the venereal disease is gradually become more mild, our author is hopeful that it may also wear out. Dr. Astruc proves this disease always to be communicated here in Europe by infection, and modestly conjectures, from the effects of its poison, that it is of an acid, or acido-saline, corrosive and fixed nature.

Dr. Morgan (a) recommends several uncommon methods of cure in different diseases, the most remarkable of which we shall mention. The tincture of cantharides is (b) a medicine that may almost be absolutely depended on for stopping the immoderate flow of urine in a diabetes. He makes this tincture by infusing half an ounce of cantharides upon a pound of the elixir vitrioli, of which tincture, from fifteen to thirty or forty drops, may be given twice or thrice a day, in Bristol hot-well water. Prop. XIII. is employed in inculcating the advantages of curing fevers by sweating, raised by low cooling drinks in the effluent or inflammatory fevers, and by the warmer regimen in influent or nervous fevers. In which last he recommends blisters much, especially when soon applied; and proposes that the blistering plaisters should be left on four or five days, or as long as they will draw off any thing. The cure proposed by the doctor for intermittents, as preferable to the common practice, is to give a vomit about an hour after the invasion of the cold fit; which being wrought off, the patient goes to bed, and is put as soon as possible into a large and copious sweat, to be continued and succoured by plentiful dilution, for six or eight hours. This method, three or four times repeated, scarce ever fails of curing a quartan, especially if the person afflicted use the cold bath every day between the fits.

(a) Mechan. pract.

(b) Ibid. p. 114.

But in a tertian, this method once or twice repeated, makes commonly a cure. In petechial and malignant fevers, there is no hope but from sweating, which it is impossible to raise and maintain uniformly and equally in these cases, without the most powerful and effectual blistering. He esteems sweating and loose stools of the greatest advantage in the small-pox ; and likewise proposes it as a cure for the gout, sciatica, and rheumatism. Sweating sustained with proper diluters, is also recommended by him in dry coughs. After the dry cough, and catarrh which follows it, is thoroughly fixed, he never found any thing effectual but giving calomel, or some such moderate mercurial, to raise a slight and gentle salivation.

He thinks the fluor albus is the lymph corrupted, and assures us the tincture of cantharides, given in a pretty strong decoction of guajacum, has good effects in its cure when recent. But where this disease is of long standing and inveterate, recourse must be had to mercurials. He appears to be no friend to blood-letting (a), making it matter of advice and request to all younger and unexperienced physicians, to be sparing of human blood, to see an absolute necessity of it before they spill it, &c. When opium, says the doctor (b), affects the head or lungs, by its volatile, æthereal oil or spirit, acids, especially fossil acids, are the proper correctors. When opium produces sickness, nausea, vomitings, spasms, flatulent colic pains, and such like symptoms, by the action of its ponderous, stimulating, and adhesive oil, the warmest alexipharmics must be used. According to our author (c), the most effectual medicines in scorbutic disorders, are mercurial deobstruents. He has found the following medicine very successful: Rx. Mercur. viv. unc. ij. Terebinth. drachm. ij. vel q. s. ad Mercur. fixandum, cui adde Rhubarb. unc. i. sem. Cochinell. unc. sem. & cum Elixir. Propriet. q. s. fiat massa pilularis. This commonly proves an effectual and

(a) Mechan. pract. p. 255.

(b) P. 271.

(c) P. 278.

safe diuretic. While it is taking, the patient is now and then to be moderately sweated. If the pills ever raise a salivation, the force of the mercury on the salival glands may be easily prevented or restrained at pleasure, only by rinsing the mouth pretty often in a day with a solution of camphire in oil of olives. For the cure of the scurvy, he proposes (a) that the patient should be put into a warm or hot bath for half an hour, or forty minutes, till the pores are all opened, and the sweats are moderately raised and brought out; and then let him be taken out and immediately immersed in cold water for half a minute, or just time enough to dip the head two or three times, and then taken out again and put to bed, in order to keep up a pretty free flowing sweat for three or four hours, to be maintained and supported with any of the common warm diluters, such as sage-tea, wine-whey, posset-drink, &c. At the same time the parts affected may be slightly touched every other night, going to bed, with the unq. neapolitan. or something equivalent; in every ounce of which a dram of prepared cantharides has been mixed and incorporated, first reduced to the most subtile powder: and upon this any common sudorific draught or bolus may be given, to be supported with diluters as before, in order to keep up a moderate breathing sweat for the night.

*For the Year 1735.*

DR. Martin (b) has made useful remarks on the construction and graduation of thermometers, and has reduced the most remarkable of these instruments, which have been employed in different parts of Europe, for observing the changes in our atmosphere, to one general standard, so as to enable us to compare the several observations together.

Mr. Macky, professor of history in the university of Edinburgh, sent the Royal Society a voucher for the grandgor (lues venerea) raging at Edinburgh in

(a) Mechan. pract. p. 354. (b) Physical and medical essays.

1497. It is a royal proclamation, ordering all who had the disease, or who had attended people under it, to repair forthwith to an island in the frith of Forth (a).

Dr. Hahn's treatise on the antiquity of the small-pox, has been criticized by Dr. Werlhoff, who endeavours to shew that Dr. Hahn's quotations from the old Greek writers concerning the carbuncle, cannot be understood of the small-pox, which is a disease we have no account of till the Saracens dispersed it.

Dr. Hahn, in a letter on the cyrtonofus, or rickets, which is commonly thought to be a modern disease, quotes Hippocrates, and several other ancient writers, as treating of it.

Mr. William Arrot, surgeon, who lived a considerable time in Peru, describes the tree from which the Peruvian bark is got. It grows in the country between two and five degrees of south latitude; it is tall, without branches to near the top, where it spreads out into a hemisphere; its bark is of a dark colour on the outside; its leaves resemble those of a plumb-tree. There are four sorts of the bark, the reddish, the yellowish, the curling, and the whitish. The two first are the best kinds; the curled is got from young trees, and the white soon becomes insipid. The best sort grows about the city of Loxa. The Indians slice off the bark from the trees, and carry it to houses to be dried (b). Mr. Condamine (c) says this tree is called cascarila, and is very different from the quina quina.

The Italian physicians seem at present very fond of cold water, which they esteem almost an universal remedy, giving in a day fifteen, twenty, or twenty-five pounds of water made cold by ice, and applying at the same time cold water or snow to several parts of the body. By this method they treat fevers, small-pox, dropsy, &c. (d).

(a) Phil. Trans. N° 469, § 5.  
(c) Mem. de l'acad. des sciences, 1738.  
1736, hebd. 8. § 2.

(b) Ibid. N° 446, § 1.  
(d) Commerc. Norimb.

Near the famous well at Pyrmont, is a stone quarry under ground, from some parts of which a sulphureous steam comes out, which rises a small height for ordinary. Animals held in this steam are soon suffocated, but recover if quickly taken out. When one stands in this steam, with the head higher than it ascends, it proves an excellent sudorific. Dr. Seip proposes to perform cures in several diseases with it (a).

Mr. Tennent (b) tells us, that being informed of the efficacy of the *Polygala Virginiana*, *foliis oblongis, floribus in thyrsi candidis, radice alexipharmacæ*; in preventing the terrible effects of the bite of the rattle-snake, and having seen people thus bit under cure, by taking this root internally, and applying it externally, he suspected, from the analogy of the symptoms with those of a pleurisy, peripneumony, and other diseases arising from a viscidity and coagulation of the blood, that it might also be serviceable in those diseases. Having afterwards made trial of it in such cases, it answered so well, that he gave it to a considerable number of such patients, several of whose cases he relates. This Senecka rattle-snake root, has a faint resemblance to the rattle of the snake for whose bite it was first employed by the Indians. Upon first swallowing the powder of this root, one does not think it very pungent, but soon after it discovers itself to be very acrid. Mr. Tennent gives this medicine either in powder or decoction; but prefers the decoction, having observed it to give relief sooner than the powder does. The dose of the powder is thirty-five grains, and he gives at once three spoonfuls of the decoction, prepared by boiling three ounces of the root bruised in a quart of water, to near the half. The dose is repeated every six hours. Its effects are diuretic, diaphoretic, cathartic, and sometimes emetic: he prevents the two latter operations, by mixing any testaceous medicines with the powder, and giving

(a) Philos. Trans. N° 448, § 4. & Miscellan. Berolinens. tom. V. part II. § 4. (b) Letter concerning the Senecka rattle-snake root.

it in weak cinnamon-water. When it is a genuine inflammatory pleurify, he lets blood in the beginning, and repeats it afterwards, if there is occasion. But if either the disease is of a nervous or bastard kind, or has been of soine standing, he forbears blood-letting, vesicatories, and all other medicines, trusting entirely to this root, which he affirms has scarce ever failed to make a cure, and that in some very desperate circumstances. He is also fond of this root in the rheumatism, dropsy, and gout; in which last disease, he says, he has given it with success.

Messrs Lemery, Hamel, and Jussieu, vouch for the good effects of the Senecka root in pleurisies and other inflammatory diseases (a).

Mr. du Hamel found the polygala vulgaris of service in promoting expectoration in pleurisies (b).

Jo. Jac. Zannichelli (c) affirms, that after a great many trials, he has found the bark of the hippocastanum to have the same effect as the Peruvian bark has.

The powder of cortices aurantiorum - sometimes cures quartan agues (d).

Dr Kramer recommends the powder of the root of the gratiola centaurioides, C. B. pin. flore albo, as having the effect of ipecacuana in diarrhoeas and dysenteries. He also says it cures intermitting fevers, and is preferable in decoction to the woods, in the cure of the lues venerea (e).

Dr. Flemyngh (f) proposes a query concerning giving the Jesuits bark in the small-pox, and recommends the practice, which, in his preface, he says he is glad to see has been practised by Mr. Monro (g).

We have an account of many fatal consequences from the preposterous use of the Peruvian bark (h), confirmed by particular examples (i).

(a) Mem. de l'acad. des sciences, 1739. (b) Ibid. (c) De Hippocastani facultatibus. (d) Commerc. Norimb. 1735. hebd. 11, § 3.

(e) Ibid. 1738. hebd. 3. § 1. (f) Proposals for the improvement of medicine, by physicians proposing whatever they think useful to be examined and canvassed by others. (g) See essays abridged, vol. I page 187. (h) Select. medic. Francofurt. tom. I. vol. IV. art. 2. (i) Ibid. vol. VI. § 2.

Dr. Bruckner recommends the decoction of arnica vera, or Plaviensis, in feverish disorders, accompanied with hæmorrhagies, efflorescentiæ, &c (a).

The powder of the leaves of hedera arborea, is recommended by Dr. Nebelius, as a specific which seldom fails to cure the paidatrophia. The dose is as much as lies on the points of two or three knives, according to the age, given in tea, or such like liquor, for nine mornings, in the decrease of the moon (b).

Mr. Godfrey affirms, that most of what is commonly sold for bole armoniac, terra sigillata, and terra Lemnia, is pipe-clay and oaker ground together (c).

The resinous part of opium being noxious in his opinion, he proposes to make liquid laudanum, by digesting an ounce and a quarter of opium in half a pint of distilled water twenty-four hours, shaking the vessel frequently; then filters it, and adds three ounces of spirit of wine; after which the other ingredients may be added at pleasure (d).

Dr. Wagner (e) recommends the powder of squills given with nitre, in hydropical swellings and in a nephritis, and mentions several examples of cures which he performed by giving patients four or ten grains, with a double quantity of nitre. He says it almost always operates as a diuretic, sometimes vomits or purges.

Dr. Hess says, he has made cures of the asthma with the powder of squills (f). The efficacy of this powder of squills, from four to twelve grains, in curing the asthma, is attested by several (g).

Dr. Trew observing the oil of cajeput to resemble the smell of cardamoms, judges the plant from which it is obtained, to be the Elegans melegettæ species, described by Lobelius, or the Granis paradyssæ meligettæ affinis fructus, C. B. in pin. (h). Dr. Trew recommends four or five drops of this oil of cajeput,

(a) Select. med. Francofurt, tom. I. vol. III. art. 4. (b) Actæ medico-phys. acad. naturæ curiosorum, vol. V. obs. 120. (c) Miscellan. vere utilia, p. 50. (d) Ibid. p. 59. (e) Clinical observations. (f) Commerc. Norimberg. 1737, hebd. 14, § 2. & hebd. 15, § 2. (g) Ibid. 1739, hebd. 34. (h) Ibid. 1737, hebd. 17, § 2.

in a proper liquor, as an excellent nervous medicine (a), and as of great efficacy in the cardialgia (b).

Dr. Kramer says, pulv. bufonum, when applied by way of pultice, with barley-flower and urine, is an excellent remedy for ripening pestilential buboes, but that it has no such effect in venereal, or any other than pestilential buboes (c).

A viper-catcher allowed himself to be bit several times by vipers, which made his arm swell, brought pains in several parts, caused him to vomit and purge, and occasioned several other bad symptoms, which were all removed, by rubbing the parts affected with fallad oil over warm coals. The fallad oil proved also a cure to several animals bit by vipers, but others died, though it was applied (d).

Messrs. Geoffroy and Hunauld conclude, from a great many experiments made on fowls and quadrupeds, and from some histories of men bit by vipers, that nothing can be affirmed for the specific virtue of the oil in this case, for that several animals recovered after they were bit by vipers, to whom no oil was applied; and others died, for whom the oil was employed according to the directions of the English viper-catchers (e).

Drinking sea-water, with some wine, is said to prevent people from being sick at sea (f).

Mr. Sutton proposes to clear ships of foul air by a pipe, branches of which are laid in the hold, and its extremity is fixed into the ash-hole of the furnace (g). Mr. Watson shews how these pipes may be laid, so as to be no way inconvenient, and relates the success of a trial of them which was made on a hulk (h).

Dr. Hales (i) shews how to have fresh wholesome water from sea-water. His method is to keep sea-water close shut up, till it has putrified, and has again

- (a) Commerc. Norimb. 1732, hebd. 2. & ibid. 1737. hebd. 24.
- § 2. (b) Ibid. 1734, hebd. 5. § 1. (c) Ibid. 1735. hebd. 38.
- § 1. (d) Phil. Trans. N° 443, § 5, 6. N° 444, § 7. N° 445,
- § 6. (e) Mem. de l'acad. des sciences, 1737. (f) Act. physico-med. acad. natur. curios. vol. V. obs. 84. (g) Phil. Trans. N° 462.
- § 12. (h) Ibid. N° 463, § 4. (i) Philosophical experiments. become

become sweet ; then he distils three-fourths of the sea-water, free both of the bittern and acid. He likewise enters into a particular detail of the circumstances which may make the practice of this supply of fresh water easy. To preserve water from corrupting, he proposes that two or three drops of oil of sulphur should be mixed with a quart of water, which may be drank safely. To preserve ship-biscuit from insects, he advises to make the fumes of burning brimstone pass through the casks full of bread. He proposes also to salt flesh, by injecting hydrostatically a strong brine into the blood-vessels of animals immediately after they are killed. Steel-waters often break the bottles into which they are put, and many of them lose their chalybeate properties soon when bottled. To prevent the former inconvenience, he put a small glass tube through the cork of the bottles, filling them so as to leave no air-bubbles between the cork and water. In other bottles he put some very soft compressible corks. By both these means the water was allowed to rarify, without bursting the bottles. By mixing very few drops of an acid, such as oil of sulphur, with the steel waters, they retain long their chalybeate property. Dr. Jurin found the chalybeate waters, thus acidulated, to be a very successful remedy for a diabetes.

Camphire is purified by dissolving it in spirit of wine, and then distilling the spirit from it, the camphire, being afterwards melted in glasses, is formed into cakes of the form of the glasses (a).

Dr. Martin (b) endeavours to defend the doctrine of the specific operations of cathartic medicines, from the different nature of the drugs, and by an appeal to experience.

Several attempts have been made to discover the composition of the remedy which we mentioned (c)

(a) Act. acad. nat. curios. vol. V. obs. 98. (b) Essays physical and medical. (c) See p. 434 of this volume.

to have had a great run at London. The author of one pamphlet (a) says, that if one of Ward's pills, and one compounded of glass of antimony and cina-bar of antimony, amassed with gum tragacanth, are put into different places on a red-hot iron, you will see each of them emit a fine blue flame with some smoak, which lasts till the sulphur and quicksilver are both entirely consumed ; and there will remain, upon the iron in each place, the stibium or glass of antimony, as plain and apparent as when it was first made ; from which he concludes them to be the same composition. Mr. Clutton (b) mentions some cases where they did service, but relates the histories of fifty cases in which they did great mischief, and accuses Mr. Ward of obtaining false testimonies of cures. To discover the composition of these pills, he dissolved the several sorts of them, and then viewing with a microscope the powder which precipitated, he saw three different-coloured powders remaining of the blue pill, to wit, a yellow, red, and white powder ; the yellow and red agreed exactly with the glass of antimony, the white one appeared to be common arsenic. Having put the washed powder on a red-hot bar of iron, it melted, and then evaporated away with the offensive smoak of arsenic. Ward's pill being inclosed in copper, and exposed to a strong heat, made the copper white, and as hard as iron, which arsenic also does. He also observed in this blue pill another powder, which he judged to be zaffre, that is, calcin'd cobalt incorporated with flints. As near as he could judge, the proportion of the several ingredients in this blue pill, are one third glass of antimony, near two thirds of arsenic, and a very small part of cobalt or zaffre, with some powder of blue. The red pill appeared to be much the same composition as the blue, only red arsenic was made use of instead of the white, and that the colouring of powder-blue was left out. The purple pills tinged glass blue,

(a) Ward's pill dissected. (b) True and candid relation of the good and bad effects of Ward's pill and drop.

which cobalt or zaffre does; therefore he thinks them composed principally of cobalt, with a little glass of antimony, which left a yellowish border upon the glass.

Mr. Geoffroy relates the manner of making an extract of vegetables preferable to the common ones: it is by infusing a small quantity of the drug in a large quantity of water; then evaporating the filtrated liquor, to the consistence of a syrup, in B. M. which is to be poured into a number of china plates, to be dried by the heat of the sun, or B. M. The crust scraped off the plates, has the same virtue as the medicine, though reduced to one third its quantity (a).

By mixing equal quantities of the juice of house-leek, sedum minus, passed through paper, and of spirit of wine rectified by itself, a white coagulum of a very volatile nature is formed, which Dr. Burghart commends for curing pimples of the face, and says, that the thin liquor separated from it, with sugar-candy, is an excellent remedy for thick viscid phlegm in the breast (b).

Mr. Maud, chemist, observed crystals formed in the oil of sassafras, as we mentioned Mr. Neuman had done in the oil of thyme (c).

Mr. Godfrey (d) affirms, that the gin commonly sold in London, is made by distilling thirty gallons of water, ten gallons of lamp-spirits, and a quart of oil of turpentine. He observes (e), that what is called mercurius vitæ, prepared of sublimate mercury and antimony, has no mercury in it, but is the reguline part of the antimony, with the acid of the sublimate; and what remains, is the mercury formed into cinabar, by the sulphur of the antimony.

Sal ammoniac is now discovered to be no other than the salt sublimed from the foot of burnt cow-dung (f). Mr. du Hamel observes, that sal ammoniac, mixed with the dry powder of chalk, yields a

(a) Mem. de l'acad. des sciences, 1738. (b) Satyr. Silefiac. spec. 4. obs. 2. (c) Phil. Trans. N° 450, § 7. (d) Miscellan. p 29. (e) Ibid. p. 58. (f) Mem. de l'acad. des sciences, 1735.

greater quantity of volatile salt, than by the common methods.

From the great quantity of sea-salt frequently found in cineres clavellati, Dr. Degner suspects that the sea-salt is designedly mixed with these ashes, because it is cheaper (a).

It has been disputed whether white vitriol is anything else than green vitriol calcined (b).

Mr. Lemery shews a simple method of reducing steel to a very fine powder, without rusting it: pour water on filings of steel in an earthen vessel, till it is four inches above the filings; stir it well every day, supplying more water, as that in the vessel subsides, so that the steel is always covered: continue this operation till the steel falls into an impalpable black powder, then dry it for use (c).

Several remarkable cures (d) have been made in Germany by Dr. Plummer's alterant medicine (e).

The kermes mineral was a preparation of Glau-  
ber, which the king of France bought of Mr. Li-  
gerie, and made public in 1720: that receipt was  
in the following form: Take a pound of Hunga-  
rian antimony, broke into thin pieces, according to  
the direction of its spicula; four ounces of nitre fixed  
by charcoal; and a pint of rain-water: boil them two  
hours; then filtrate the warm liquor; and when it cools  
the kermes precipitates. The same antimony under-  
goes the same operations with the remaining liquor,  
to which three ounces of fixed nitre, and a pint of  
water, is added. In a third boiling, two ounces of  
nitre, and a pint of water, are to be added to the

(a) Act. acad. n. c. vol. V. obs. 150. See medical essays abridg'd, vol. I. p. 165. (b) White vitriol has been found to be of a quite different species from either the green or blue vitriols. See Geoffroy mat. med. tom. I. p. 124. In the condition it is usually bought, it contains somewhat both of copper and iron; but by being purified by solution, filtration, and crystallization, is freed from them both. From its natural history, and experiments made on it, it appears to be a native vitriol sui generis. See Cramer. element. art. docimast. vol. I. p. 302. ed. 2. (c) Mem. de l'acad. des sciences, 1736. (d) Act. acad. nat. cur. vol. V. obs. 136. (e) See vol. I. of this abridgment, p. 205.

former lixivium. The kermes thus obtained, is about dram, and is well edulcorated by washing it with water, and burning spirit of wine on it; then it is dried for use. Mr. Geoffroy shews, by many experiments, that the kermes is the reguline part of the antimony, joined to a sort of hepar sulphuris. He learns us a much easier way of preparing this medicine: Mix intimately the fine powder of two parts of antimony, and one of any fixed alkaline salt; melt those materials in a crucible; then having powdered them while hot, boil them two hours in a large quantity of water; after this, pass the hot liquor through paper, receiving it into a vessel where there is hot water, the kermes separates when it cools. The grosser parts which do not pass through the paper, are to be boiled again, and filtrated as before; and the operation is to be repeated a third time, by which six or seven drams of kermes may be got out of every ounce of antimony. He says he has seen effects like to those of mild kermes from antimony, reduced to such a fine powder, that none of the shining spicula are to be seen; and that the magistry of antimony, made by pouring spirit of nitre, or aqua regia, on the powder of antimony, and then edulcorating the mass with water, has the same effects as kermes (a).

Mr. Gross dissolving thin plates of lead in spirit of nitre weakened with an equal quantity of water, observed a grey-coloured powder precipitate, which when tried on gold or copper, shewed itself to be mercurial, and even in the powder he saw small globules of quicksilver (b).

We mentioned Mr. Boerhaave's experiments on mercury, communicated to the Royal Society; he sent an account of the other part of these experiments to the Academy of Sciences at Paris. The conclusions from these experiments are, that he could not change quicksilver into any other metal, and that no quicksilver was to be got from lead or tin (c).

(a) Mem. de l'acad. des sciences, 1734, 1735. (b) Ibid. 1733.  
(c) Ibid. 1734.

Mr. Dictericus proposes to dulcify sublimate mercury more effectually than is done by the common sublimations. His method is, to pour two pounds of boiling water to ten ounces of mercury, reduced to a subtile powder; after stirring them some time, he allows it to remain in rest twelve hours; then he pours off the water, dries the powder, and sublimes it again in a sand-heat (a). He says too, that mercury may be sufficiently dulcify'd, by washing the white precipitate with water, till not the least spicula of salt can be seen, and then subliming it (b). Mr. Dictericus gives us these rules for knowing whether sublimate mercury is sufficiently edulcorated in making *mercurius dulcis*. If after rubbing the mercury on gold, the gold becomes only pale, and not white, the mercury is dulcified enough, or if sweet mercury becomes black when mixed with lime-water, it is fit for use; but if either the gold becomes white, or the mercury is of a brown or yellow colour, after mixing with lime-water, it is not sufficiently dulcified (c). Some in order to make corrosive sublimate mercury, extinguish by trituration quicksilver in calcined vitriol. Mr. Lemery observes, that bole-armoniac or potters clay are cheaper, and extinguish the mercury sooner. He also agrees with Barchusen and Boulduc, that the rubbing of salt of tartar on corrosive mercury, is no trial whether it is sophisticated or not; for (d) it has the same effect on both. Dr. Kirsten affirms, that sublimate mercury rightly prepared, becomes first saffron-coloured, and then red, when oil of tartar is dropp'd on it; whereas if it is adulterated with arsenic, it becomes first near the colour of brimstone, then red, afterwards ashy-coloured, and at last black. He is positive in this, notwithstanding what Barchusen and Boulduc have said to the contrary (e). An anonymous chemist affirms, that

(a) A more scientifical method of dulcifying mercury sublimate, is delivered in the *Pharmacopœia reformata*, p. 85. (b) *Commerc. Norimb.* 1737, hebd. 29. § 2. (c) *Ibid. 1735*, hebd. 20. (d) *Mem. de l'acad. des sciences*, 1734. (e) *Commerc. Norimb.* 1738, hebd. 12. § 2.

sublimate prepared with arsenic, becomes at last white, instead of black, when touched with oil of tartar. He says, that in the sublimation of sweet mercury, where the corrosive sublimate has been adulterated, the upper part is of an orange-colour, and a white earth remains in the bottom, and the belly of the glass becomes dark-coloured or smoaky ; whereas, when the corrosive mercury is genuine, the upper part is white, the powder in the bottom is red, and the middle is not smoaky-coloured. But the sweet mercury prepared with genuine or adulterated corrosive, appears on every trial the same (a).

Dr. Kramer relates the history of a lad who swallowed half an ounce of corrosive sublimate mercury ; soon after which his mouth, and stomach were so eroded, that he voided large quantities of blood both upwards and downwards, with violent gripes, coldness of the extremities, startings of the tendons, and racking pain. A vomit was soon given ; notwithstanding which the symptoms continuing, Dr. Kramer ordered mild drink, with large quantities of oil of tartar per deliquum in it, by which the symptoms soon were mitigated, and the cure was completed by giving theriaca Andromachi, with terra sigillata, and putting him into a warm bath (b).

Mr. Lewenhoek observed a small aquatic animal, from the sides of which its young germinated (c), and his observation was confirmed by an English gentleman (d). Mr. Trembley having more accurately examined this creature, which from its number of small horns proceeding from its head, he calls polypus, found that there were no males and females among these creatures, but that each produced its young as shoots come from plants, only that at last they dropped away from the parent. Into how many soever parts one of these animals is transversely cut, each part becomes soon a complete creature, the head acquiring a body and tail, the tail produces a body,

(a) Commerc. Norimb. hebd. 37. § 1. (b) Ibid. 1735, hebd. 30. § 3. (c) Phil. Trans. N° 283. (d) Ibid. N° 288.

head, and horns, and from each intermediate part both head and tail shoot out. — When one of these creatures is divided length-ways, each half closes, and becomes again a complete animal.—When the inside of any one is turned out, it lives, feeds, generates, and does the same offices as a sound one does; so that the outside becomes inside, and the inside changes into outside. Tho' this creature consists only of one tube, yet its animal nature is evident from its motion, sensation, and greedy devouring its food. Mr. Trembley's observations and experiments have been repeated and verified by several gentlemen of the Royal Society at London, and Academy of sciences at Paris, and some other creatures of the worm-kind, urticæ marinæ, star-fish, &c. have since been found to answer to several of these trials (a).

Mr. Demours (b) affords us another fact which serves also to shew the relation of animals and vegetables; it is in the copulation of water salamanders, the male of which has no penis, but squirts out the semen masculinum at a little distance from the female; and though he could not observe that any of it is received into her body, yet her ova are fecundated.

The French academicians have of late disputed whether monsters, that is, creatures born with their organs preternaturally formed or situated, supernumerary or defective, were originally so formed in their first stamina, or whether this deformity has been owing to some accidental change upon them. The arguments for these opinions are remarks on particular histories of such monsters which we cannot abridge, and therefore must refer to the *memoires de l'acad. des sciences* 1733, 1734, 1738, 1739.

Dr. Barrere (c) alledges that the gall of negroes is black, and being mixed with their blood, is deposited between their skin and scarf-skin.

(a) See Phil Trans. N°. 466. § 2. & 5. N° 469. § 6. Reaumur's preface to his sixth vol. of history of insects. (b) Observation concernant l'*histoire naturelle*. (c) Dissert. on the physical cause of the colour of Negroes.

Mr. John Belchier shewed to the Royal Society the bones of hogs, which were become red, by their feeding on bran that had been boiled with printed calicoes, which had been stained with preparations of iron, alum, sugar, of lead, and had had an infusion of madder-root, *rubia tinctorum*, to fix the colours (a). By feeding a cock sixteen days on fig-dust, with a little madder-root, all his bones became also red (b).

Mr. Hamel du Monçau has verified Mr. Belchier's experiments, and observed, that except the villous coat of the stomach and intestines, the capsula of the crystalline and vitreous humours of the eyes, and some very hard bony tendons, and the bones, no other part had any tincture of the madder. The most solid bones were most tinged, and all the red ones were larger, more spongy, and easily broken; nor did they unite so well, when broken, as white bones. Some young animals had their bones tinged in three days. The red colour went gradually off, when the creatures forbore to take the madder for food, which proved unhealthy, for they began to languish soon, and died with it.—Vegetables did not take the red colour when they where planted in madder; and none of the other dyes which he fed animals with, had any such effect of tinging their bones as the madder had (c). We are informed, that Mr. Du Hamel having mixed madder with the food of a pig for some time, and then kept away the madder as long time, found, upon sawing the bones through, that their interior laminæ were red, while the exterior were white: and having fed another pig six weeks with madder, then kept it out of its food as long, and then mixed it other six weeks; upon sawing the bones, they were composed of three layers, the external and internal were red, the middle one was white.

Mr. Hunauld sees frequently the bones of the heads of children intimately united without any future,

(a) Phil. Trans. N° 442, § 8.

(b) Ibid. N° 443, § 2.

(c) Ibid. N° 457, § 4. Memoires de l'acad. des sciences, 1730.  
which

which he thinks must be of the worst consequence. He demonstrated a nerve turning up from the semilunar ganglion near the mesenteric plexus, to be distributed to the right auricle and base of the heart. He also shewed the lymphatic vessels of the lungs, terminating in the thoracic duct (a).

Mr. Du Vernoy observes the right side of the os hyoides, to be shorter than the left (b).

Dr. Walther has given a very minute description of the intercostal nerves, and eighth pair (c).

Dr. Wintringham jun. (d) examines the density, thickness, and force of the coats of the larger arteries and veins, and the properties of the parts of the eye. 1. He determines their densities to be as their specific gravities. 2. He discovers their thickness from the space equal portions take up in water. To know the strength of the parts, he exposed them to different pressures of the air by means of the condensing engine ; and from the force, measured by a mercurial gage, which was required to burst them, he estimated their relative strengths. He found that the coats of veins are about  $\frac{1}{19}$  more dense than the coats of the arteries.—That the density and thickness of the vessels is greater in males than in females ;—That both density and thickness increase by age, but more remarkably in the arteries. That the strength of vessels is in a compound ratio of the density and thickness of their coats ; that the coats of arteries are not of the same thickness in the whole circumference of the canal ; but wherever there is a curvature, the convex side is thicker than the concave. That the coats of the branches of arteries are so far from becoming weaker proportionally to their becoming thinner, that on the contrary they are stronger. That this greater strength is proportionally greater in some parts than in others. That the capacity of the

(a) Hist. de l'acad. des sciences, 1714. (b) Comment. acad. Petropol. tom. VII. (c) Nov. act. erud. Lips. 1734. Febr. & ibid. 1736. Sept. (d) Experimental enquiry into some parts of the animal structure.

arteries in females is greater in respect of the veins than it is in males. That the proportional thickness of the coats of different arteries of the same animal, is very various. That the vena portæ is much stronger proportionally to its contents than the aorta or vena cava is to its capacity. That the veins of secerning organs are larger, and have weaker coats than the veins returning from other parts. By like experiments it appears that the pericardium, nay even the pia mater, is much stonger proportionally to its thickness than the aorta is. The density of an intire crystalline lens separated from its capsula, was to water as 1106 to 1000. When the exterior thinner part of the crystalline was taken away, what remained was as 1148 to 1000. The capsula of the crystalline humors, were as 1046 to 1000, nearly the same as the cornea. The vitreous humor was as 10024 to 10000. The strength of the cornea is to that of the capsula of the crystalline, as 7129 to 1000. The cohesion of the parts of the vitreous humor, was to that of wa-  
ter, as 45 to 1. In an ox's eye, the cornea was  $\frac{1}{20}$ , the capsula of the crystalline  $\frac{1}{488}$ , and the retina  $\frac{1}{1571}$  of an inch in thickness. He found that the chord of the cornea of an ox's eye, was equal to 1.05 of an inch. The versed sine of this chord was 0.29. The distance of the anterior part of the crystalline from the vertex of the cornea, was 0.355 of an inch. The chord of the crystalline 0.74, and the versed sine of its anterior surface 0.189, and the versed sine of the posterior surface 0.266 of an inch. The axis of the crystalline was 0.575, and the axis of the whole eye was 2.21 of an inch. The vitreous humor did not yield to the greatest force which he could apply of the condensing engine. By applying weights to threads placed as a sphincter on the edge of the cornea, he found it required three ounces two penny weight and nine grains, to make the vertex of the cornea advance  $\frac{1}{20}$  of an inch. By putting a needle between the edge of the uvea and the ciliary circle, he found it required nineteen penny-weight, sometimes more than an

ounce, to separate the iris from the ciliary circle; and therefore the iris, the circumference of which was equal to  $3\frac{3}{4}$  inches, might exert a force equal to nine ounces ten penny-weight at least, before it would separate from the ciliary circle; consequently it could raise the cornea into a greater sphericity. Some of the consequences Dr. Wintingham draws from these facts, are; if arteries had been as dense as veins, they would have ossified by the pressure they undergo; and on the same account the aorta is not so dense as its branches. Bleeding is necessary in old as well as in young people, but must not be so plentiful in the former. The nourishment of old people should be less than of young. Diseases are from laxity in females, from rigidity in males. The mutable focus of the eye does not depend on any motion of the crystalline humor, nor on the condensation of the vitreous humor, but on the change of the figure of the crystalline and cornea, by means of the iris and ligamentum ciliare.

Dr. Steuart (a) having proposed the arguments for a fluid of the nerves, taken from the analogy of the brain to other glands, and having shewn, by experiments, the great elasticity of the blood-vessels, while the nerves have none, tells us what idea he has of a muscular fibre, to wit, that it is a nervous filament formed into small vesicles, covered with a net-work of small blood-vessels. From his doctrine he accounts for muscles being harder, paler, and of less volume when stretched, but especially when fully contracted; and illustrates this by observations on the motion of the guts of a living rabbit, parts of which were distended with air, confined by a strong contraction of the muscular fibres above and below the distended part; for the distended part had its vessels full, while the contracted parts were pale. By his doctrine too he explains Dr. Glisson's experiments of immersing the arm into a vessel full of water, which subsides rather than rises, when the muscles contract violently.

(a) Treatise on muscular motion.

Dr. Quietschius calls the glands which have no particular excretory ducts, glandulæ cæcæ, or clausæ; and argues for their being designed to prepare nourishment for the other parts, from the observation that they decrease after birth to full growth, then continue in the same condition till old age comes on; after which they gradually shrivel (a).

Dr. Chevalier defends Fracassatus's opinion of the motion of the brain being owing to the air entring by the olfactory nerves into the ventricles of the brain, which air, rarified by the heat, loses its spring, and is expelled by the elastic contracting dura mater.

Mr. Le Cat (b) explains his notions of our solids and fluids, among which, there are several uncommon; we shall mention one or two. A caustic fluid is what detains the blood in a fluid state, and forms the red globules; but this needs the assistance of the animal fluid, which is the principle that preserves all from corruption, and to it we owe our sensation and motion. This animal fluid passes in the proper nervous tubes to the organs of motion, but is contained in the fibrous coats of the nerves to become an organ of sensation. This sensitive fluid is, he says, capable of thinking, and is so modified by the ganglions, that what is lodged in each part, is capable of being impressed by the object proper to each organ. From this doctrine concerning this animal fluid, he endeavours to account for most operations which are generally said to depend on the soul. In his treatise on the organ of sound, he has new figures of several parts of the ear, and proposes an instrument, as of his own invention, to assist dull hearing; it consists of a shell or cornet of copper, into which a small funnel-like tube is fixed, so as its narrow end is at the center of the cornet. Dr. Parsons (c) says this instrument is common in England. The picture which Mr. le Cat gives of the base of the brain, with the several nerves and vessels, is new and elegant. In his

(a) Select. medica Francofurtens. tom. II. vol. I. § 3. (b) Preliminary discourses to his physiology. (c) Phil. Trans. N° 466, § 9.

description of the parts of the eye, he says the pia mater gives three membranes to the eye; the first lines the sclerotic coat, and is joined to it, the second is the choroid coat, and the third is the villous mammary one, proceeding from the choroid, and is commonly called Ruyfch's coat. He strenuously defends Mr. Marriot's opinion of the choroid coat, and not the retina being the immediate organ of vision; the retina, according to him, is to the choroid, what the epidermis is to the skin. The figure he gives of the lacrymal gland and ducts is new, representing the parts in their natural posture. In his doctrine of light and colours, he differs in some things from Sir Isaac Newton; but our design will not allow us to follow our author in his account of this subject, and the explication which he gives of the phænomena of vision.

Morgagni has published a new edition of Valsalva's treatise de aure humana, and to that has joined the posthumous dissertations, both making a volume in quarto. He has accompanied these with eighteen letters of his own, which make two volumes in quarto. Morgagni's remarks on the ear, heart with its vessels, nerves, intestines, eyes, and glandulæ renales, are made with the accuracy so conspicuous in all that great anatomist's writings. An historical account is generally premised of what has been said on each part of the subject he treats of, and then he relates Valsalva's and his own descriptions and observations made in a variety of animals, but particularly on the human body. The number and variety of these remarks, consisting chiefly of accurate minute descriptions, makes it impossible for us to enter upon a detail of them in the narrow compass to which we are confined.

Dr. Cassebhom's treatises on the ear, being only minute descriptions of parts, we refer to his book.

Dr. Vaterus is of opinion that the tears come from the white lines seen on the inside of the palpebræ, described by Meibomius. He observed two small ducts,

ducts, besides the common nasal duct, from the lacrymal sac into the nose; one of them opened into the upper part of the nose, the other opened into the antrum maxillare (a).

Mr. Ferren demonstrated to the academy of sciences at Paris, the lymphatic vessels of the uvea of the human eye (b).

Mr. Weitbrecht gives an accurate description and picture of the frontal, occipital, palpebral, and facial muscles (c).

The tongue is generally esteemed a necessary organ in swallowing and tasting, yet a woman, who lost her tongue entirely by a cancer when four years old, speaks distinctly, sings prettily, swallows easily, and tastes accurately (d).

Mr. Petit, the surgeon, endeavours to prove, that, in sucking, children principally force down the milk from the breast, by the pressure of their lips and tongue making a little void at the end of the nipple, to assist the flow of the milk each time they swallow (e).

Mr. Weitbrecht concludes, from the small quantity of blood thrown out of the heart into the arteries, and the great resistance in the capillary arteries, that all, or much the larger share, of what is sent out of the heart, is retained in the arteries during the systole of the heart, and is sent forward into the veins, by the contraction of the arteries, but so that the veins can have no pulsation, because as much as is received from the veins, is thrown into the heart at the same time. The smallness of the quantity of blood thrown out of the heart, makes him think that the pulsation of the arteries cannot be so much owing to their distention, as to their change of place; and he says, he perceives, upon trial, that all the arteries of the body are not dilated or contracted at the same time. The auricles, according to our author, serve to give

(a) *Miscellan. Berolin.* tom. IV. pars III. § 5. (b) *Hist. de l'acad. des sciences,* 1738. (c) See *comment. acad. Petropol.* tom. VII. (d) *Phil. Transf.* N° 464, § 11. (e) *Mem. de l'acad. des sciences,* 1735.

an impetus to the blood on the ventricles of the heart ; for the blood moves so slow in the veins, that its momentum would not be sufficient to distend, and to give a spring great enough to the ventricles. The pulmonary blood acquiring considerable velocity by the motion of the lungs, requires a much less auricle than the blood of the *venæ cavæ* (a).

From the experiments made on living animals by Dr. Houston (b), Dr. Hoadley (c), and Mr. Bremond (d), the lungs seem to act independent of the thorax, continuing to be dilated and contracted after they are exposed to the air.

Dr. Hoadley (e) endeavours to prove, that the external intercostal muscles serve for inspiration, while the internal intercostals are their antagonists, depressing the ribs in expiration. He thinks it proved by Dr. Hales's experiments (f), that there is air in the cavity of the thorax between the lungs and the pleura, and endeavours to take off the force of Dr. Houston's asserting that he saw the lungs and pleura contiguous. He grants however that sometimes there may be little or no air. He accounts for respiration nearly in the same way with those who assume the contiguity of the lungs and pleura. He joins with those who think the impetus, which the internal surface of the lungs sustains in common respiration, to be very little. The uses of respiration are, to discharge from the venal blood and chyle, such parts as are unfit to render them arterial blood, and to admit air into the blood. From this doctrine, he accounts for the phænomena of the diseases of the lungs. He subjoins the picture, and description of an ingenious instrument for illustrating the manner in which respiration is performed.

Mr. Petit, the physician, examining the body of a child who had lived a few hours after birth, saw the lungs of the right side such as are common to those

(a) *Comment. acad. Petropol. tom. VI. & VII.* (b) *Phil. Transf. N° 441, § 4.* (c) *Lectures on respiration.* (d) *Mem. de l'acad. des sciences, 1739.* (e) *Lectures on respiration.* (f) *Vegetable statics, exp. 112, and 113 ; and Hæmat. p. 83.*

who have breathed; but those of the left side, were as of a foetus, and sunk in water, which was owing to the trachea being blocked up with a thick glairy matter; whereas all the mucus in the trachea of a foetus, is not above fourteen or sixteen grains, which does no more than besmear the surface of the lungs when the air rushes in. Mr. Petit says, that when once the lungs are blown up, the air cannot be pressed out with the fingers, but may be exhausted, by keeping the lungs in the exhausted receiver of an air-pump. He observes, that there is generally more liquor in the thorax of foetuses, than of animals which have breathed. To know if this liquor came from the cavity of the lungs, he poured water into the trachea, but none of it passed through the membranes of the lungs: he seems inclined to believe, that this liquor in the thorax of foetuses, is furnished by the thymus (a).

Dr. Boesel relates an example of a child certainly born dead, whose body was not dissected till it was considerably putrified; its vessels were full of air, and vesicles distended with it were seen on the lungs, which swam in water, unless when a little piece of their internal substance, free from all bubbles of air, was cut out; such a piece thrown into water, sunk to the bottom of the vessel (b). How cautious ought they to be, who examine the bodies of infants, in order to make a judicial report?

Mr. Ferren observes, that each lobule of the liver consists of an external, friable, yellowish-red cortical substance, and of an internal soft, pulpos, medullary part. The medullary substance is the pulpy extremities of the biliary ducts, proceeding from the cortical part. The blood in the hepatic artery, has bile secreted from it, and its remaining blood is conveyed by veins into the vena portarum, where a second secretion is made from it. Besides the secretion of bile made from the hepatic artery and vena portarum, he

(a) Mem. de l'acad. des sciences, 1733.  
Norimb. ann. 1736. hebd. 1. § 2.

(b) Commerc.

has seen biliary ducts coming from the left ligament of the liver, the diaphragm, coats of the gall-bladder, and part of the vena cava; all which are visible upon injecting coloured liquors into the trunks of the hepatic ducts. The bile is equally bitter and strong in the smallest biliary canals, as in the larger trunks; the thick yellow bile sometimes found in the trunks, being the cystic bile, remounting from the common into the hepatic duct, on which account the hepatic is often larger than the common duct. The lymphatic vessels may be traced to the extreme branches of the vena portarum, and to the biliary ducts, by injecting liquors into the larger trunks of the external lymphatics. The lymphatic vessels of the kidneys appear upon blowing air by the ureter into the pelvis of the kidney (a).

Mr. Lieutaud argues for the spleen's being larger by a greater quantity of blood in it, when the stomach is empty, and that this blood is pressed out when the stomach is full, to increase the secretion of bile (b).

Mr. du Vernoy remarks the glandulæ renales to be very variable in their magnitude, figure, &c. but that they are always contiguous, and firmly connected to the kidneys. In some foetuses they appear solid, without any cavity, in others they are distended with thin blood; in adults they are always flat: they are readily distended, by blowing air into them by their vein. When the glands are opened, and quicksilver is injected, a great many ducts are seen, at which the mercury runs out. Two arteries and a vein belong to each gland, and a great many ducts, like rays, make a circle round it. An artery rising from the aorta, is sent down from the lower edge of the gland to the testes of men, and ovaria of women, which Valsalva mistook for ducts (c).

Mr. Weitbrecht gives a better description of the figure and situation of the human bladder, than is to be met with in the common systems (d).

(a) Hist. de l'acad. des sciences, 1733. (b) Ibid. 1738. (c) Compt. acad. Petropol. tom. V. (d) Ibid.

Dr. Agricola describes a valve at the entry of the canalis arteriosus into the aorta descendens, composed of four sides, two of which prevent its being shut till after birth, and the other two prevent its being thrust off from the orifice of the canalis arteriosus (a).

Dr. Trew endeavours to shew, how, after birth the umbilical vein and arteries, separating from the navel, gradually retract within their sheaths, which they have from the peritoneum; and how the sides of the sheaths grow together, as the sides of the remains of the vessels also do; so that the hæmorrhagies which sometimes happen at the navels of adults, must not be from the umbilical vessels, but from some other (b).

Dr. Stack informs us of a woman, aged sixty-eight years, who gave suck to two grandchildren; the first brought milk into her breasts, by sucking when she put her nipple into its mouth, to quiet it in absence of its mother (c).

Dr. Martin (d) treats of the laws and proportions of the motions and forces of the solids and fluids of animals, of however different magnitudes, which are supposed of similar make and constitution.

The editor of Boerhaave's physiologia, with the figures of the parts copied from the books which Boerhaave cites, says justly, that the pictures serve to make the text be better understood, and may save the trouble of consulting a great number of books.

Dr. Haller (e) has not only collected from the best authors, what relates to the animal œconomy, but has corrected and improved them in a great many particulars.

Mr. le Cat has contrived a hammock of Turkey leather, which may be easily raised or let down with a sick person in it, by ropes and pulleys (f).

In p. 435 of this volume, we mentioned Mr. Petit's opinion of hæmorrhagies from cut arteries being stop-

(a) Commerc. Norimb. 1735, hebd. 4. § 2. (b) Ibid. 1737. hebd. 13, § 1. (c) Phil. Trans. N° 453, § 10. (d) Tract. de similib. animalibus. (e) Boerhaave's præ'esi. acad. in proprias institut. cum notis. (f) Phil. Trans. N° 468, § 8.

ped by a plug of clotted blood ; he has since shewn to the academy of sciences such a plug in an artery (a).

Mr. Morand endeavours to prove that the contraction of the coats of arteries, and the concretion of their sides, are the principal and surest means of stopping the effusion of blood from them (b).

Some German physicians endeavour to restore the reputation of Digby's sympathetic powder for stopping hæmorrhagies (c).

Mr. Godfrey (d) affirms, that by immersing a burnt part into cold water for several hours, adding fresh cold water from time to time, all the pain of burning may be prevented, and that the part will cure afterwards with a simple ointment of cerus, oil, sperm. cet. &c.

Mr. Quesnay examines the doubtful cases where the trepan ought, or ought not to be applied ; and, after relating many histories, concludes for performing the operation as the safest method, where it is ambiguous whether there is an extravasation of liquors, or depression of the skull. He mentions examples of very contused wounds of the teguments of the head, which were cured by concretion ; and several cases to prove that the adhesion of the pericranium to the skull, is no sure sign of the bone's being entire, and that the separation of the pericranium from the skull, is as unsure a sign of the cranium being broken. Examples of contrafissures are also related ; and he gives histories of the trepan being performed several times with success for the same disease, and of large parts of the skull being taken away, without loss of the patient's life. A sort of hernia is sometimes formed at the aperture of the cranium, after a cicatrice is formed in the teguments ; he mentions a case treated by Mr. Marechall, where such a hernia occasioned convulsions, which were cured by keeping a proper bandage on the parts, to prevent their being protruded. Mr. Quesnay says, the apertures of the skull are sometimes filled with a substance which comes from the edges of the

(a) Mem. de l'acad. des sciences, 1735.

(b) Ibid. 1731.

(c) Medic. Silesiac. satyr. spec. 2. obs. 8.

(d) Miscell. verè util.

bone,

bone, and gradually ossifies. Sometimes a hard callus has been observed to come from the dura mater to fill the hole. He encourages surgeons to open abscesses when they form in the brain, and even to push a lancet into the brain, when the symptoms indicate a suppuration, though the pus is neither felt nor seen. He assures us from experience, that ardent spirits are not so proper for preventing the growth of fungus from the brain, as balsam. Fierovanti, or oil of terebinth. He recommends mel. rosar. as a good medicine to be injected within the skull (a).

Mr. Petit considers the canals for the tears from the puncta lacrymalia as a syphon, the longer leg of which is the nasal duct, and therefore thinks that a shorter passage made through the os unguis, would not convey away the tears; for which reason he would always have the natural passage forced open in the fistula lacrymalis, and a small bougie kept in it till it heals (b).

The pterygion cured in a dog, and afterwards in a woman, by bathing with a malt spirit (c).

Dr. Burghart, in a chemosis where the cornea was already burst, dilated the opening, and extracted the crystalline lens, which had come forward before the iris. The lens was so changed and suppurated, that it resembled a piece of white amber: after extracting it, the pain of the eye became milder (d).

Mr. Petit, after relating the history of a woman who had a complicated tumor of the trachea, gives two cautions in such cases: 1. To enquire very particularly whether the patient has the lues venerea. 2. To guard against a ring or part of the trachea falling into this pipe when it exfoliates (e).

Mr. Bevin gives a long detail of the misfortunes that have happened from hard or sharp substances that were attempted to be swallowed, and of the me-

- (a) Mem. de l'acad. de chirurg. tom. I. (b) Mem. de l'acad. des sciences, 1734. (c) Commerc. No:imb. 1739. hebdom. 44.  
 (d) Medic. Sileiac. satyr. spec. 2. obs. 4. (e) Mem. de l'acad. de chirurg. tom. I.

thod proposed for remedying each ; we shall only observe Mr. Petit's improvement on the stilet for extracting pins or fish-bones sticking in the œsophagus, which is to have several little rings of wire, or thread at the end of a flexible probe or wire (a).

Mr. Foubert observed a tumor between the xiphoid cartilage, and the edges of the cartilages of the ribs, occasioned by an abscess within the thorax (b).

Mr. Amyand relates the history of a gentleman, who, after being cured of an ague by the bark, complained of weight, hardness and uneasiness in the liver, with borborygmi and costiveness, for which he frequently took purgatives. After being fourteen years in this way, he had some symptoms of the jaundice. After several weeks more, an inflammatory tumor was observed in the right hypochondre, which suppurated, and, when opened, discharged purulent matter some days. The quantity of pus decreasing, there was a sudden discharge of a great quantity of yellow biliary matter from the sore ; forty pounds of this flowed out in twenty-five days. The symptoms of the jaundice going off, he became costive, took physic, catched cold, grew feverish, and died lethargic. His gall-bladder was found extended into a bag, capable of containing three pounds of liquor, and was connected to another smaller bag, in which the pus had been lodged. Several bags were formed in the coats of the gall-bladder : these contained a cretaceous matter, with hard white stones. The cystic duct was so contracted, or blocked up, that nothing could pass through it. The hepatic and the common biliary ducts were open, but empty. A biliary canal, formed of several branches which joined within the liver, opened itself into the gall-bladder. The liver was found in appearance (c). Dr. Steuart's account of these symptoms (d), may be guessed from what is in p. 440, &c. of this volume.

(a) Mem. de l'acad. de chirurg. tom. I.  
Trans. N° 449, § 7.

(d) Ibid. § 8.

(b) Ibid.

(c) Phil.

Mr. Petit gives the marks by which such a distension of the gall-bladder from bile as makes an external tumor with fluctuation, may be known and distinguished from an abscess in the liver. In both cases there is fever, pain, shivering, tumor, &c. preceding: But, 1. When the abscess begins to form, the pain increases; whereas it diminishes when the gall-bladder is distended. 2. The pain of the suppuration is pulsatory, which the other is not. 3. The pain goes sooner off, and leaves the patient more in spirits, when there is no suppuration. 4. The shivering, in the suppuration continues longer, and terminates in a sweat, the pulse is smaller; whereas in the distension of the gall-bladder, the shivering is of short continuance, the pulse is stronger, and there is no sweat. 5. The distended gall-bladder is like an incysted tumor, firm, equal and circumscribed; the abscess is more diffused. 6. The distended gall-bladder is always seen below the cartilages of the ribs. The abscess of the liver forms any where in the epigastric region. 7. The fluctuation of the liquor in the gall-bladder is all felt at once over the whole tumor: the fluctuation of the abscess becomes gradually more perceptible, and there is always some hardness round it. When the gall is collected in its bladder, if an incision is made into it, it runs into the abdomen, and soon destroys the patient, unless when the gall-bladder adheres to the peritoneum, which, Mr. Petit says, may be known to be the case;

1. When the tumor cannot be made to change places.
2. By the sponginess and redness of the teguments.
3. By there having been frequent returns of inflammation. When an abscess and a distended gall-bladder happen at the same time, it is difficult to discover the latter. When the gall-bladder can be opened, so that the bile may all be evacuated at the orifice, it is to be done; and if there are any concretions lodged in it, they are to be extracted (a).

(a) Mem. de l'acad. de chirurg. tom. I.

Dr. Kalttschmied adds a stopcock to the canula of his trocars, that he may evacuate the water of dropsies at pleasure (a).

Mr. Amyand observes, that herniæ return after the operation of the bubonocele, and that the omentum may be cut safely without any ligature put upon it. In the dissection of an old hernia, he saw one side of the intestinum ilium stretched out into a tube, like to the cæcum (b). He remarks also, that herniæ, where the omentum falls down with the intestines, are more dangerous than where the gut is alone, because the omentum hinders the reduction of the gut, grows to the rings of the muscles, swells and forms a thick ring, which strangulates the gut (c).

Dr. Sacks greatly recommends linseed, from which the oil has been expressed, boiled in milk, and applied warm in a cloth on herniæ (d).

Mr. De la Peyronie observed the strangulation of the intestine to continue after the reduction of a hernia, occasioned by the omentum grown to the interior part of each side of the passage. He also relates histories of mortified pieces of intestines in herniæ cut away, and a cure made by keeping the extremities of the gut near to each other, and near to the rings of the muscles, with a stitch through the mesentery. The ends of the intestine grew to the peritoneum, new flesh was extended along this membrane, and joined the extremities together. The soldered part of the gut is always straitned; and therefore, whoever are cured in this case had need to guard against too full meals and indigestion. A woman who had been cured in such a case and had eat too plentifully, fell into vomiting, which burst her gut, and she died in a few hours. The upper end of a divided intestine ought carefully to be kept near the external orifice, that the remains of the food may not fall into the cavity of the abdomen (e).

(a) Commerc. Norimb. 1738. heb'd. 38, § 1. (b) Phil. Trans. N° 443, § 8. (c) Ibid. N° 450, § 2. (d) Satyr. sileiac. Specim. 4. obs. 4. (e) Mem. de l'acad. de chirurg. tom. I.

Spring steel trusses seem to be known but lately in France, the description and picture of one being inserted into *Memoires de l'acad de chirurg.* tom I.

Mr. Garengot relates examples of uncommon herniæ, to wit, near the xiphoid cartilage, into the vagina, and through the hole common to the os pubis and ischium, at the place where the vessels and nerves pass. The elastic substance they contain, and the common symptoms of strangulated intestines, may lead one to distinguish them from other tumors of those parts (a).

Mr. Amyand mentions the colon being cured after being wounded with a bullet: when he opened the body several years after, he saw the part of the gut formerly wounded then considerably contracted (b).

Dr. Wolfius relates the history of one whose intestinum ilium was burst by the fall of a stone on his belly (c).

Mr. Freke proposes to employ a syringotom of a new form, for laying open fistulæ in ano, which run up on the side of the rectum, without having any perforation into its cavity (d).

Mr. Faget advises to slit open the intestinum rectum, whenever it is laid bare by an abscess, and gives an example of a cure which he made, by cutting away the extremity of this gut, which had been laid bare all round by abscesses (e).

Mr. Petit observes, That it is very difficult to hit of the right part for making a perforation into the rectum of children born without any anus; for he finds generally the extremity of the gut formed into a knot. For performing such a perforation, he recommends a trocar, the canula and circular plate of which are so slit open, as to serve as a groove for a bistoury to be run in, to inlarge the aperture, after the trocar has been pushed into the gut (f).

(a) *Mem. de l'acad. de chirurg.* tom. I.  
N° 443, § 8. (c) *Ibid.* N° 445, § 12. (b) *Phil. Trans.*  
Barroughby's translation of Astruc's treatise on the fistula in ano.  
(e) *Mem. de l'acad. de chirurg.* tom. I. (f) *Ibid.*

Mr. Le Cat was very successful in performing the lateral operation for the stone ; he found great advantage to his patients from the warm bath, when they were threatened with inflammation (a). He makes a groove on the right side of his instruments, which assists him to introduce them more readily. He employs a narrow convex edged knife to slit the prostatæ and neck of the bladder ; since he has made use of this instrument, his operations have been more successful (b).

Mr. Foubert performs lithotomy in the following manner ; he either injects a mild liquor into the bladder, or makes a ligature on the penis to retain the urine till the bladder is stretched.—The bladder being distended, he thrusts a long trocar, the canula of which is open on one side, into the bladder, from the middle point between the anus and tuberosity of the os ischium, then drawing the stilet of the trocar back a little, he pushes a knife along a slit in the canula, and when it is in the bladder, he raises the point to cut the interior parts : then resting the point on the trocar, he raises the handle to make a large enough external incision. For making these incisions more conveniently, his knife is narrow bladed, and set into its handle at a considerable angle. The incision being made, the gorgere is introduced, and all the rest of the operation is the same as in the common lateral operation (c).

We are informed, by a private letter from Paris, that Mr. Faget proposes a different way of lithotomy from any yet practised. The patient being in the same situation as for performing the operation in Johannes de Romanis's way, the furrowed catheter, introduced into the bladder, is pushed strongly backwards, the operator cuts the skin and teguments from near the os coccygis, to near the tuber of the ischium, and then, with a small knife, cuts the back part of

(a) Hist. de l'acad. des sciences, 1734.  
(c) Commerc. Norimb. 1739, hebdom. 6, 7, 8.

(b) Ibid. 1738.  
Mem. de l'acad. de chirurg. tom. I.

the bladder upon the groove of the catheter, introduces the gorgere, and performs what remains of the operation in the ordinary way.

Mr. Nourse shewed to the Royal Society the bladder of a man, in which six sacculi or bags were formed, by the protrusion of the internal coat of the bladder through the muscular. In these bags nine stones were contained (a).

Mr. Houstet has collected a great many instances of stones lodged in sacs formed in the bladder, from which it was impossible to extract them, without tearing the bladder, or cutting one side of the sac, which Mr. Garengeot did once with success. In some of the cases which he mentions, the vessels of the bladder were in appearance grown into the stone, and the extraction of the stone was attended with a mortal hæmorrhagy (b).

Mr. De la Peyronie mentions examples of impediment to the ejection of the semen masculinum in coition, by a wrong direction which the orifices at the veru montanum got, whereby the seed was thrown up into the bladder.

Mr. Petit cured one patient under such a difficulty of ejecting seed, by making an incision such as is commonly made for the great operation for the stone (c).

Mr. De la Peyronie remarks, That the hard knots which form sometimes in the corpus cavernosum urethræ after venereal virulency, are very difficult to cure. Till the pocky matter is all got out of the blood, it is in vain to attempt the cure of these knots, and even after the venereal taint is gone, they do not yield to mercury in any shape, but are resolved by douches of the waters of Bareges (d).

Mr. Puzos recommends much the natural delivery rather than the forced one for women who have a flooding, when with child. His method with which he has had great success in such cases, is to let blood,

(a) Phil. Trans. N° 462, § 3. (b) Mem. de l' acad. de chirurg. tom. I. (c) Ibid. (d) Ibid.

to order rest, and a cooling diet. These medicines generally stop the hæmorrhagy, which happens in the first months of gestation.—If the flow of blood continues, he dilates the os uteri gently with his fingers, and breaks through the membranes of the secundines, to let the waters out as soon as he can. Immediately after this the pains commonly become brisk, and the contraction of the womb stops the bleeding. In some few cases where he judges that the patient would lose too much blood, by waiting the natural delivery, he forces away the child (a).

Mr. Le Cat gives the description and figure of an ambi, free of the faults which Hippocrates's ambi has (b).

A man whose arm with the scapula was torn off by a mill, cured without any hæmorrhagy (c).

Two examples of the tendo achillis, which had been cut through, being cured without stitching (d).

Mr. De la Faye author of the notes added to the third edition of Dionis sur les operations de chirurg. mentions some improvements that are not commonly taken notice of. It is a common objection to stitching wounds of the thorax, that its motion is constant and necessary. Mr. De la Faye observes, that the most considerable muscles situated on the thorax are not employed in its motions ; and therefore are in as little danger of tearing a stitch as any other muscles ; besides, the motion is not a sufficient objection, otherwise the abdomen would not be order'd to be stitched when wounded. Sometimes in a palsy of the coats of the urinary bladder, the bladder is raised into a tumor above the ossa pubis, which he warns surgeons not to mistake for an abscess. The same caution is also necessary, when the gall-bladder is distended much by its contents, and appears prominent below the edges of the cartilages of the ribs. In inflammation of the urethra and neck of the bladder, when there is a necessity of sounding the patient to let out the

(a) Mem. de l'acad. de chirurg. tom. I. (b) Phil. Trans. N° 469, § 2. (c) Ibid. N° 449, § 5. (d) Commerc. Norimb. 1740. hebdom. 46.

urine,

urine, he approves of Mr. Petit's catheter; which so far differs from the common one, that it is open only at the extremity, which can be shut, by drawing backward a small pyramidal button at the extremity of the wire. He alledges, that the swelled membrane of the urethra forces itself into the openings at the sides of the common catheter near its point, and is fixed so firmly in them, that the catheter cannot be taken out, after it is introduced, without much pain, hæmorrhagy, and increase of the inflammation. The catheter employed in such a case, ought not to be so crooked as it commonly is, that it may be more easily introduced. When the operation for a hernia is performed where the viscera are grown to the containing parts, he advises to let the bowels remain, and only to remove the cause of strangulation, when the cohesion is intimate. He gives examples of the success of this practice. In such cases especially, the surgeon ought to examine whether any part of the intestine lately fallen down and not cohering, is engaged in the ring of the muscles, and to take care to reduce it. He relates histories of great pieces of gangren'd guts taken away, after which the extremities being kept together by a ligature, united. Mr. Gerard having tied a dossal in the middle of a thread, which he put round a rib, where the intercostal artery had been wounded, and having applied the dossal upon the artery, he tied the two ends of the thread on a compress placed on the outside of the rib, and thus stopped the hæmorrhagy. Mr. Morand extirpated a polypus of the nose, with one finger in the nostril, while he introduced another finger by the mouth above the palate, and with the two fingers separated the polypus.

Mr. Sharp (a) seems to dissuade surgeons from making any large opening into the tunica vaginalis of the testicle, for the cure of a hydrocele: he mentions three patients of his, who had near lost their lives after such an operation; violent tension and in-

(a) Operations of surgery, chap. 9.

flammation were brought on another, by injecting an ounce of spirit of wine at the puncture, by which the water of a hydrocele had been evacuated. He affirms that all indurations of the glandular part of the testicle not tending to inflammation and abscesses, generally, if not always, lead on to schirrhous, whereas tumors of the epididymis seldom or never do so. He condemns the operation of the empyema, for evacuating blood or pus, but allows it for voiding water, and then would have the opening made between the fifth and sixth ribs, and half way between the vertebræ and sternum. He advises always to cut away an oval part of the scalp, in order to examine whether or not the skull is fractured, rather than to make a crucial incision ; for, if the trepan must be performed, the teguments must be cut away, and if that operation is not necessary, the contused teguments keep in the matter, and corrupt the bone. He prefers the trefine to the trepan, because the trepan is more unhandy, and there is greater convenience of holding the trefine, and leaning on one side or other of the saw. He would have the heads of the trefine to be made of a cylindrical form instead of the conical ; for less force and time are required to perforate the bone with it, than with the conical. Mr. Cheselden destroys swelled amygdalæ, by making ligatures round their base, either by a single thread which he draws tight, by keeping one end of it firm in the fauces on a ring on the end of a stilet, while he draws the other with his fingers ; or with a needle, the eye of which is near the point, and having two threads in it, he perforates a very large amygdala in the middle, making a ligature on each half with each thread. Mr. Sharp says he has extirpated hemorrhoids this way.

We have at last a complete body of surgery in Mr. Heister's *institutiones chirurgicæ*.

To point out the use which might be made of a continued and regular series of observations of the changes in our atmosphere, and of the diseases in the different seasons ; and to shew the advantage which might be reasonably

reasonably expected from them, we shall copy the aphorisms which Dr. Hilary's friend has collected from the doctor's observations of that kind (a).

1. Continued warm dry seasons are productive of inflammatory diseases, in which the head is chiefly affected. Maniac, and melancholy or hypochondriac affections are likewise more frequent after such seasons.
2. Continued cold and dry seasons are productive of inflammatory diseases, in which the head is sometimes, but more frequently the bowels, are affected.
3. In warm moist weather, epidemical diseases are gentle and moderate, and persons are disposed to slow continual fevers, with little heat or thirst. This constitution likewise takes off diseases which owe their rise to a cold dry season.
4. Continued cold and moist seasons produce diseases attended with serous fluxions and inflammations of the glandular parts ; quinsies, catarrhs, fevers, asthmas, peripneumonies, diarrhoeas, with remitting and violent intermitting fevers, apoplexies and palsies.
5. Fevers caused by such a constitution of the air, for the most part are attended with stupors, frequent symptomatical discharges by stool, partial and universal sweats (but without any relief) rendering the habit infirm and obnoxious to long intermittents, and tedious chronical disorders.
6. A change from hot and dry, to cold and moist, puts an end to those disorders which proceed from the first mentioned state of the weather ; or changes their appearance in proportion to the quickness in which they succeed each other ; violent inflammatory fevers are now also frequent, chiefly affecting the membranous parts, as the larynx, pleura, lungs, stomach, and the membranous coverings of the joints, occasioning pleurisy, rheumatism, &c.
7. When a hot and dry season succeeds a cold and moist one, if the change is gradual, it takes off the diseases produced by the preceding constitution, and occasions intermittents : but if it is sudden, it renders those distempers malignant.

(a) Appendix tacked to his treatise on the small pox.

The small-pox in such a constitution mostly become of a worse kind.

The year 1731 was a very dry season about Paris, during which, dryness of the mouth, sickness, nausea, disorders in the throat, several of which were quinsies, different fluxions to the head, and several sorts of irregular obstinate fevers were very frequent at Paris. Mr. Jussieu observing those who drank the water of the Seine to be generally attacked with these disorders, examined the water of that river, and of the Marne, and found them bitter and acrid to the taste, which, he thinks, was owing to the more than ordinary quantity of hippurus and conferva propagated that year in those rivers, and their sources (a).

Dr. Huxham (b) not only mentions the method of treating the several epidemic distempers which prevailed, during the nine years of his observations, but in his notes enters into the general rationale and cure of several, where there are many good practical hints. We shall transcribe some of them. To those who were recovering from obstinate intermitting fevers, he prescribed the cold bath as a strengthner, to prevent a return of the disease; and it was very successful. Expectoration is to be promoted in the peripneumony, but is not to be expected in a genuine pleurisy, in which common pectorals are of no use. In the chincough he uses the common evacuations, and proposes to correct the lento of the blood, and to strengthen the nerves and stomach by mercurials, the cortex and proper stomachics. He recommends much small doses of emetic wine, as a deobstruent and sudorific in slow fevers, in many chronical diseases, and especially in an obstinate rhéumatism. He has thousands of times experienced the good effects of tartarus regeneratus in the cure of obstructions of the bowels, and for sluggish humors, but proposes a more penetrating

(a) Mem de l'Acad. des sciences, 1734.

(b) Observationes

de aere & morbis epidemicis.

medicine, to wit, salt of hartshorn, saturated with spirit of vinegar, which not only takes away the fetid smell of the oil of the salt, but changes it into an agreeable aromatic. We regret that we cannot bring what he has said on slow nervous fevers and the colic of Devonshire, into a small enough space to be inserted here.

Dr. Cheyne (a) recommends milk and seed-diet with water for drink, as the surest preservative against diseases, and cure of them ; among other examples of the efficacy of this diet, he says, that a total ass-milk diet, (about two quarts a day, without any other food or drink) will in time cure a cancer ; and when, to the milk and seed-diet some of the proper medicines for the several distempers are joined, cure may be made of beginning consumptions, hemiplegia, or dead palsey, gonorrhæa and pox, an habitual asthma, hæmorrhagies, leprosy, &c. Water or sherbet made of juice of oranges and a little honey, is, according to Dr. Cheyne, the best drink in a dropsey. An anasarca may be cured by exercise and drinking water. He prefers plain liquid quicksilver, æthiops, mercurius alkalisatus or cinnabar to all other preparations of mercury ; and in these forms it is a favourite medicine with him.

Dr. Martin defends the antients in the rules they laid down concerning the periods and crises of diseases, endeavouring to prove that they are founded on accurate observations.

An hydropic body became so infectious, that the surgeon who tapped the corpse was thrown into a pestilential fever (b).

The Indians in America have a very subtle poison, which they sometimes make use of: Dr. Burges says, the antidote to this is the root of the sensitive weed, herba sensitiva, of which an handful is boiled in three quarts of water. The dose of this decoction is a glassful every hour (c).

(a) Rational method of curing diseases.  
N° 454, § 4.    (c) Ibid. N° 462, § 2.

(b) Phil. Trans.

Dr. Masnechelli tells us, that in the plague among the cattle in Italy in 1735, rue, wormwood, garlic, and such other strong smelling plants, hung about their noses and mouths, were esteemed preservatives against the infection. Nitrous medicines, gunpowder, sulphur, and the sharper aromatics, given to the cattle, did hurt. Bleeding, crude antimony with setons, and a diet of the most mild softning herbs, did service.

Dr. de Sault (a) argues for the rabies depending on small worms, of which, he says, there are a great number found in the heads of those who die of this disease. From the analogy of this terrible disease with others, such as the itch, lues venerea, &c. which in his opinion are also contagious, by worms communicated from one person to another, he was led to think that the cure of the rabies was only to be performed by mercury, and the success confirmed his theory; for of four men who had all been bit at the same time by the same wolf, two were treated by the common specifics of plunging in the sea, &c. and died some days after of the rabies. The other two having all the signs of an approaching rabies, were cured by Mr. de Sault's method, which is this: — If he is consulted immediately after the person is bit, he orders him to be bathed in the sea, that the common confidence in this remedy may calm his mind. As soon as the patient returns, the doctor puts him on the use of Palmarius's powder, composed of Fol. Rut. Verben. Salv. Plantag. Polypod. Absinth. vulg. Menth. Artemis. Meliss. Betonic. Hyperic. Centaur. min. ana partes æquales, with some Coralline. A dram of this powder is to be taken every morning in a glass of white-wine or warm water. This he gives twenty or thirty days, as there is more or less presumption of the poison having entered the blood. From the first day of taking the powder, he rubs a dram or two of ung. neapolit. upon the wound, and skin round it, every other day. After doing this thrice, he

(a) In his treatise on the rabies canina.

applies the ointment every third day, and afterwards every fourth day, till he has made use of two or three ounces of the ointment.—If the patient has delayed several days to take his advice, he uses the mercurial friction three or four times a day, for four days, and increases the dose of Palmarius's powder; then forbears the inunction two days, lest a salivation be brought on.—Our author likewise recommends music as of use to calm the mind, and divert the fear which people in danger of this disease generally have.

Dr. James relates the cure he made of dogs that were mad, and how he preserved others from the rabies, who had been bit by mad dogs, by giving doses of turbeth mineral every day, or every other day. The other dogs of the pack that had been bit, died notwithstanding the famous pewter medicine, dipping in the sea, and the other common specifics.—The doctor likewise mentions three people who were bit by mad dogs, and escaped the rabies by the use of the turbeth (a).

Mr. Fuller relates the good effects of the *Pulv. antyliſſus*, composed of *Lichen. ciner. terrest.* & *Piper nigr. aa.* in preventing the rabies (b).

A person who had been bit by a mad dog, and began to have symptoms of the rabies, was saved by having one hundred and twenty ounces of blood taken in a week, and being bathed in cold water, by Mr. Hartley and Mr. Sandys (c).

Mr. Nourse relates the history of a lad bit in the thumb by a mad dog; he took morning and evening a dram of the *pulv. antyliſſ.* forty days, and bathed in the sea ten days; he was cut for the stone soon after, and recovered very well; nineteen months after which he died, with all the symptoms of the hydrophobia (d).

Vinegar is recommended by Dr. Kramer as a specific against the hydrophobia, especially if some powder of cantharides is mixed with it. The receipt

(a) Phil. Trans. N° 441, § 8.  
(c) Ibid. N° 448, § 6.

(b) Ibid. N° 448, § 5.  
(d) Ibid. N° 445, § 2.

given him was, to boil from four to ten grains of the fine powder of cantharides, in an ounce and an half, or two ounces, of the best vinegar, which is to be given warm to the patient (a).

For the cure of the lues venerea, Dr. de Sault, in his treatise on this disease, recommends frequent frictions with large quantities of mercurial ointment made with one third of quicksilver, to wit, from two or three drams to an ounce, or an ounce and an half every night, or every other night, taking care to keep the belly in a purging way, by clysters, laxatives, or the stronger purgatives, if the mercury begins to affect the mouth. He says this method is sure and altogether safe, and he relates several histories of cures performed by it, not only in the lues venerea, but in many other diseases, particularly in obstructed hardned glands, the liver, testes, &c.

Mr. Douglas (b) commends greatly de Sault's method; and we are informed by private letters, that it has been practised with success in some of the hospitals in London.

Dr. Werlhoff prefers frequently repeated small doses of Mercury to a salivation, for the cure of the lues venerea (c).

Dr. de Sault (d) being of opinion that the gout depends on the want of perspiration, proposes warm baths, exercise, keeping always, and defending from cold, clean cloths, moderate eating, abstaining from supper, tranquillity of mind, friction and milk-diet, as preservatives from it. Garlick being observed by Sanctorius to increase perspiration, is recommended, as are cortex Peruvianus and steel in winter.—When the stomach is attacked, he lets blood at the ancles, and applies epispastics of different kinds to the feet, and then endeavours to procure a general sweat.—When the pain is very violent, he blunts it, by ap-

(a) Commerc. Norimberg 1735, heb'd. 11. § 3. (b) Letter on the cure of the lues venere. (c) Commerc. Norimb. 1735, heb'd. 13, § 4. (d) Dissertation on the gout.

plying a cloth dipped in liquid laudanum to the pained part, and exhorts the patient to use exercise after this.

Dr. Buddeus endeavours to prove, that the preternatural ossifications which are commonly said to be formed in different parts of the body, do not deserve that name, for that these hard substances have scarce any other properties of bone, except the whiteness and hardness (a).

Dr. Schlichting affirms, that the spina ventosa is cured by rubbing the tumor twice a day with ung. neapolit. preventing salivation by gentle cathartics (b).

Mr. Petit says, the true aneurism, which he calls aneurism by dilatation, contains fluid blood, yields to pressure; and the noise of the liquor rushing into it may be heard; whereas in the bastard kind, which he calls aneurism by effusion, the blood is coagulated, and therefore cannot be made to return into the vessel, nor can any sound be heard (c).

Mr. du Vernoy describes an aneurismal sac situated on the third to the sixth vertebra of the thorax, which he says was the aorta dilated into a sac six inches and an half wide, and as many inches long. Its coats had a great many bony laminæ in them, and were raised into unequal protuberances. The posterior part of this sac adhered so firmly to the carious bodies of the vertebræ, that it was impossible to separate them; and three large depressions were made so deep into the vertebræ, as to be within a line or two of the cavity for the medulla spinalis. He seems to think the aneurism was owing to the caries of the bones, by which the support which arteries, according to him, generally have on one side, was taken away. The man who had this aneurism was plump, well coloured, and in appearance healthy. Mr. du Vernoy has mentioned also more ligaments of the vertebræ of the back, than are commonly described (d).

(a) Miscellan. Berolin. tom. V. pars II. § 1. (b) Phil. Trans. N° 466. § 10. (c) Mem. de l'acad des sciences, 1736. (d) Comment. acad. Petropol. tom. VI.

A man in an inflammatory fever, being let eight ounces of blood in a morning fasting, Dr. Stewart poured off from the coagulum four ounces of a white liquor resembling milk, which had no smell at first, but became very putrid, with the smell of rotten eggs, whereas chyle or milk turns sour and coagulates. Few days after, the man being again bled when he was free of the fever, the serum was clear in the common way (a).

Dr. Hilary (b) observes, that in the delirium, which sometimes comes on in the fourth or fifth day after the eruption of the small-pox, one will see the bottom of the eye of a sparkling, fiery, red colour, which is a dreadful symptom. He recommends the preparation of those who have not had the disease, to be made by antiphlogistic purgatives, small doses of Mercury, and low cooling diet; and says, that he always observed the disease more mild and favourable, the symptoms more moderate, and the pustules fewer, the longer this method was continued before the person was infected; nor did he ever see the confluent small-pox follow the use of this method, even when the persons were infected by those who had the confluent kind, and though they were of families where this disease had frequently been fatal. Our author recommends blood-letting in all the stadia of the small-pox, when the fever becomes high, or other symptoms indicate it; and generally he orders the cool regimen through the course of the disease, remarking when this management ought to be changed. He argues for the possibility of preventing the disease altogether, by treating it, according to Boerhaave's proposal, in the same way as any other inflammatory disease.

Dr. Martin, of Lausanne, recommends bathing the face and body with cloths dipped in tepid water every four hours during the eruption of the small pox, assuring that this has excellent good effects (c).

(a) Phil. Trans. N° 442. § 9.  
pox

(b) Treatise on the small-  
(c) Hist. de l'acad. des sciences, 1737.

Dr. Haller tells us, that camphire assists greatly to fill the pustules of the small-pox of the confluent kind with petechiæ (a).

The quartan ague is said to be cured by a medicine composed of euphorbium, resin of jallap, merc. dulc. and sugar (b).

Dr. Michelotti relates the cure of a young man, who, after being exposed to very hot weather at sea, and having committed violent debauches in drinking, became mad, without any fever. He was cured by violent bleeding, starving, weak very cold drink, the cold bath, and pouring cold water on his head (c).

A woman with child cured of a violent vertigo, by smoaking tobacco (d).

A lady who had an extraordinary paralytic disorder of her eye-lids, which shut every night about six o'clock, with a running of white matter, and which remained so till next morning, was cured in few days by having the waters of Balleruc near Montpelier pumped upon her neck, and the back part of her head (e).

A woman had a surprising catalepsy, her members keeping all the postures they were put into, as if she had been made of wax (f).

Mr. Maloet relates the history of a man, who for three years had a violent pain at the lower part of the forehead, near the root of the nose; at length he felt an itching, and afterwards something moving within his nostril, which he brought away with his finger. It was a worm of the centiped kind an inch and a half long, which run swiftly. It lived five or six days among tobacco. The patient was free of his pain ever after.—Mr. Littre told such another case in 1708, of a larger centiped voided at the nose, after it had thrown the woman, in whose frontal sinus it was, into convulsions, and had almost taken away her reason from her (g).

(a) *Commerc. Norimb.* 1736, hebd. 10, § 1. (b) *Ibid.* 1739, hebd. 42. (c) *Hist. de l'acad. des sciences,* 1744. (d) *Commerc. Norimb.* 1737, hebd. 4. § 3. (e) *Phil. Trans.* N° 449, § 4. (f) *Hist. de l'acad. des sciences,* 1738. (g) *Ibid.* 1733.

Mr. Demours (a) accounts for the mydriasis, where objects appear too little, from the dilatation of the vessels of the iris, which compress the ciliary nerves, and these again affect the exterior fibres of the optic nerve so as to make them unfit to convey the impressions of the rays which fall upon them ; so that the sensible part of the bottom of the eye, being reduced to a small surface, the pictures of the visible objects must be shortened, and the visual angle must be diminished, and therefore, says he, notwithstanding the dilatation of the pupil, objects will appear less. When the tears are sharp, he proposes that the patient should always sleep lying on the side opposite to the affected eye, that the tears may sooner pass off by the puncta lacrymalia, and thereby may have less chance of eroding the cornea. He recommends coarse sugar, in which there is more oil than in refined sugar, as a good ingredient in collyria, for deterring ulcers of the cornea, in which astringents are hurtful. When the aqueous humor of the eye is evacuated at a wound or ulcer of the cornea, there is danger of the iris growing to the cornea To prevent this, he exposes the patient to light from time to time, till the cornea is again raised by the aqueous humor, for the light occasions a motion in the iris, which may prevent its adhesion.

Dr. May having dissected two eyes of the same person which had been couched for cataracts, saw the opaque depressed crystalline in the one, that which had recovered sight ; but in the other he could observe only an opaque membrane, which he believed to be the capsula of the crystalline, which had been pushed out before it was ripe (b).

Dr. Agricola likewise dissected two cataractous eyes of the same person ; one of them which was judged to be ripe, had no adhesions of the capsula of the opaque crystalline, and was depressed very easily. The other required a considerable force, the

(a) Dissertation sur les maladies des yeux. (b) Commerc Norimb. 1733, tabd. 4. § 3.

iris being stretched different ways, and part of the black pigmentum of the choroid coat was separated before it was removed out of its place. The capsula of the crystalline was transparent in both. In the ripe eye purulent-like matter was every where interposed between the opaque crystalline, and its capsula. The crystalline divided into lamellæ. The purulent matter and hardened crystalline, sunk in water, but the capsula swam(a).

No water was found in either stomach or lungs of drown'd whelps (b).

A Girl remained a quarter of an hour under water without being drowned (c).

Dr. Burton (d) declares against bleeding, vomiting, and purging in the chin-cough, except in very urgent cases ; the medicine which, he says, has had great success, is a scruple of fine powder of cantharides, and as much camphire mixed with three drams of the extract of Jesuits bark. Of this mixture he gives eight or nine grains to children every third or fourth hour in a spoonful of some simple water, or some julep, in which a little bals. copaib. had been dissolved. He says this method is not proper in such chin-coughs as proceed from thin sharp rheum, but he believes that in the chin-cough from a tough viscid phlegm, it will scarce ever fail, at least it has not failed yet.

Dr. Hoyer informs us, that a most violent hiccough, which had resisted a great variety of medicines, was at last cured by sucking womens milk (e).

A particular example is related to confirm the general prognosis which some have made of a pleurisy being deadly, when purple spots supervene upon it (f).

Mr. De Sault (g) endeavours to prove that a consumption of the lungs always depends on tubercles, and that an ulcer there, is only an effect of these tubercles, and when the disease is in its last stadium

(a) Commerc. Norim. 1735. hebd. 18. (b) Medic. Silesiac. satyr. spec. 2. obs. 2. (c) Phil. Trans. N° 454. § 3. (d) Essay on chin-cough tacked to his treatise of non-naturals. (e) Act. acad. nat. cur. vol. IV. obs. 3. (f) Medic. Silesiac. satyr. spec. 2. obs. 7. (g) Diff. sur la phthisie.

and incurable, and then only becomes contagious, by small worms which it communicates to others. The cure which our author proposes for the consumption, before it comes to the last stage, is to resolve the tubercles with Mercury, steel, millepedes, and the aperient and antiscorbutic plants. He remarks that the liver is generally hard in this disease ; and therefore he applies a warm mercurial plaster on the right hypochondriac region, rubbing some mercurial ointment every night on the skin of that part ; then continues in the use of tablets made with steel, millepedes, benzoin, coral and crabs eyes, of each half an ounce, cinnamon three drams, sugar half a pound ; mix all with the mucilage of gum tragacanth made with orange flower water. The dose of these tablets is two drams morning and evening, washing it down with a ptizan made of the roots of nettles, two ounces of the juice of water-cresses, and as much juice of cervill. He says this method, with riding, has often been successful.

Dr. Kramer observes, that all boys at the time of puberty, between twelve and fourteen years of age, complain of uneasiness in their breasts, which are swelled and itchy, the nipples and areolæ round them inflaming with pain, sometimes excoriation and exulceration of some of the lactiferous ducts. The best remedy for which, he says, is to press out the white serum then contained in them, after which they cure with a bit of plaster (a).

Mr. Lieutaud found the gall-bladder of a human body contracted greatly, with its orifice blocked up by a black biliary concretion, the larger extremity of which was lodged in a sac formed between the membranes of the gall-bladder, in which a clear watery liquor was contained, and as its sides were white, he thinks it probable that no bile had ever been in it. The hepatic and cystic ducts were greatly dilated and full of bile; from which he concludes, that the cystic

(a) Commerc. Norimb. 1735. hebdom. 30. § 2.

bile is not secreted in the coats of the gall-bladder, nor conveyed into it by hepato-cystic ducts (a).

Mr. Du Vernoy mentions tumors of different figures standing out from both the external and internal surface of the intestines; they were clear, transparent, containing nothing but air, and very different from what Ruysch mentions (b).

Dr. Killner tells us of two people who were cured of an epidemic dysentery, by violent drubbing (c).

Dr. Wolf relates the case of a woman with child, who was seized with a total suppression of urine, by the womb falling down, and pressing on the urethra (d).

Dr. De Sault (e) is very positive that the hot sulphureous waters of Barege would dissolve a stone in the bladder, if they were drank long, and in large quantities; were injected into the bladder, as Mr. Hales proposes; (see p. 428 of this vol.) were given in the form of clyster and were let fall on the hypogastric region.

Mrs. Stephens having sold medicines for the stone in the bladder or kidneys some time, Dr. Hartley published several cases of their success; and so much was said of them, that the parliament appointed trustees to examine into the truth of what was alledged in her favour. The report of these trustees being favourable, she had five thousand pounds sterling ordered for publishing the receipt. Dr. Hartley (f) leaving out the superfluous part of Mrs. Stephens's prescription, reduces her receipt to a more simple form, to wit, to two and an half ounces of soap, and seven and an half scruples of egg-shell powder, as the mean dose of the medicines to be taken every day. Dr. Hale (g), after several trials on the different ingredients, found that the dissolving

(a) Hist. de l'acad. des sciences, 1735. (b) Comment. acad. Petropolit. tom. V. (c) Act. acad. nat. cur. Vol. IV. obs. 113. (d) Ibid. obs. 20. (e) Dissert. sur la pierre. (f) Supplement to the view of the present evidence, &c. (g) Account of experiments on Mrs. Stephens's medicines.

power of them lay in the lime; which Dr. Rutly (a) confirmed; and Dr. Jurin having taken soap-lees, the ingredients of which are potashes and lime; beginning with few drops, and increasing the quantity till he took an ounce, or an ounce and an half every day, in a proper vehicle, was cured of bloody urine, pain, &c. and passed several small stones; after which he had no uneasiness. Dr. Lobb (b) proposes to make the cure of the stone, by feeding only on those foods which, he thinks, have most of the lithontrip-  
tic virtues, of which he has given us a list.

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## Z.

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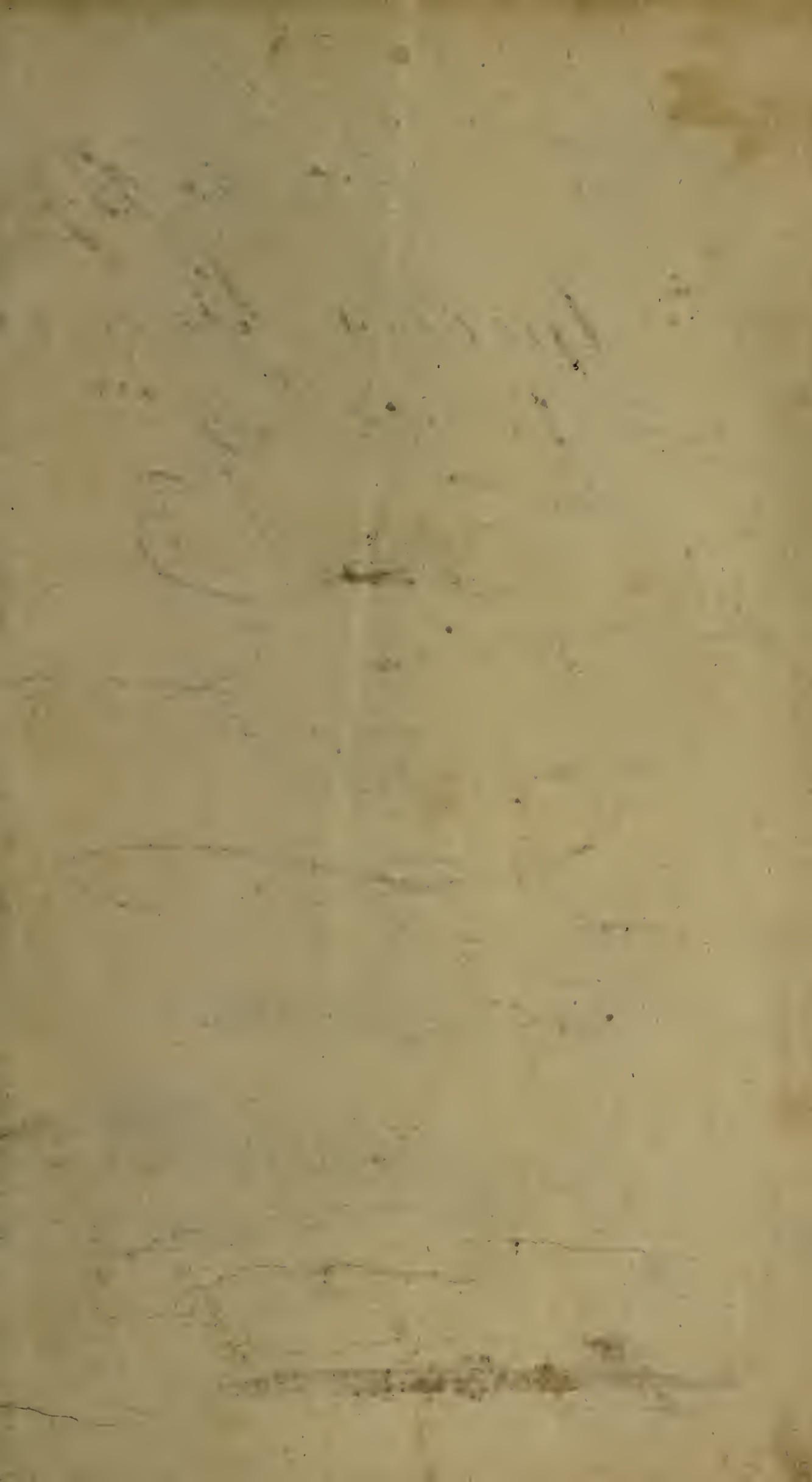
## E R R A T A.

### V O L. I.

PAGE 192. line 20. for cahiae, read cochiæ; p. 76. l. 36. for Teriac, read Theriac; p. 240. l. 3. of the note, read Vol. II. p. 398.

### V O L. II.

PAGE 14. l. 1. for muscles, read motion; p. 223. l. 9. for Butler, read Butter; p. 241. l. 22. for incovenience, read inconvenience; p. 408. l. 15. for Baillefon, read Bailleron; p. 464. l. 15. for Arrot, read Arnot; p. 248. l. 37, 38. for Leniens, read Lenient.



~~G~~ Carlos B. Jr  
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